CCD-G100STE

SERVICE MANUAL

AEP Model

CCD-G100STE is almost same as CCD-G100E.
Mainly changed specification is that the audio section is modified to the stereo system.
Therefore, this manual contains only the difference.
Please refer to the CCD-G100E service manual (9-972-935-11) for the related information not contained in this manual.

SPECIFICATIONS

System

Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (black and white)
Lens	Combined 6 x power zoom lens, f=11 – 66 mm, F 2.0 with macro Filter diameter: 37 mm
Autofocus system	TTL
Colour temperature	AUTO: HOLD, INDOOR (3200K), OUTDOOR (5800K)
Minimum illumination	9 lux (F2.0)
Illumination range	9 lux – 100,000 lux
Recommended illumination	More than 300 lux
Aperture correction	Automatic

Input and output connector

CAMERA connector	12-pin
REMOTE ZOOM jack	Stereo minijack
MIC jack	Stereo minijack, –66 dBs, low impedance with 2.5 – 3 V DC output, impedance 6.8 kilohms
Microphone power output jack	Special minijack, 5 V DC

— continued on next page —

MICROFILM

COLOUR VIDEO CAMERA

SONY®

General

Power consumption	3.5 W
Installation	Vertically, horizontally
Operating temperature	0°C to 40°C
Storage temperature	–20°C to +60°C
Dimensions	Approx. 86.6 × 80 × 227.6 mm (w/h/d)
Weight	Approx. 470 g
Microphone	Electret condenser microphone, stereo type

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

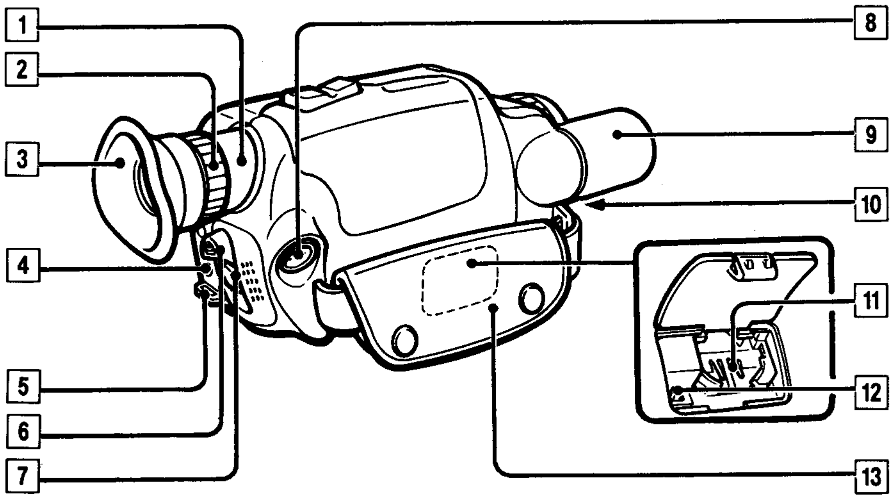
1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

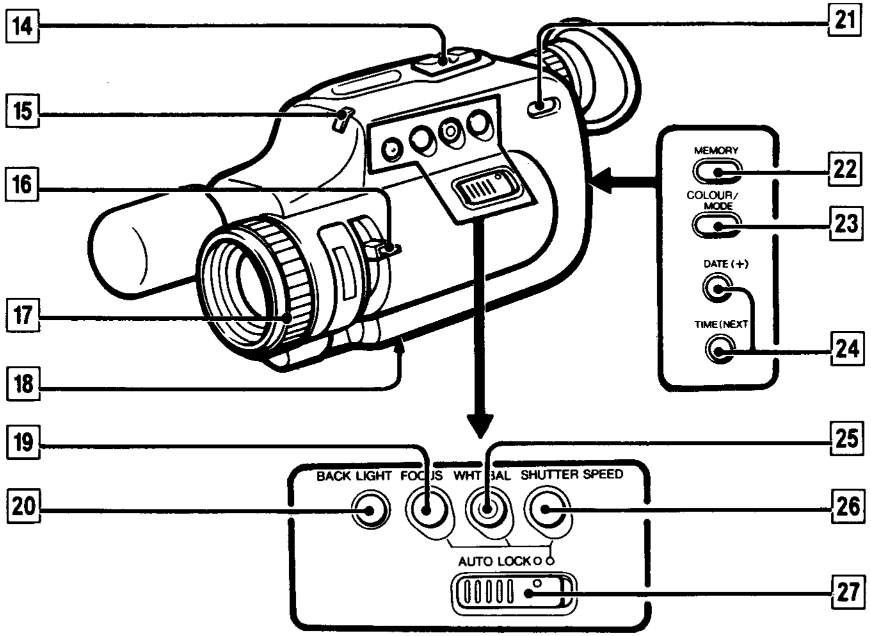
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Identifying the Parts

For details on the use of each control, refer to the pages indicated in the circle.





1 **Viewfinder**
The picture being recorded can be monitored in monochrome. Also various mode indications are displayed here.

2 **Viewfinder lens adjustment ring** ⑫

3 **Eyecup**

4 **REMOTE ZOOM connector** ㉗
Connect the supplied Remote Commander for zooming.

5 **Hook for carrying strap**

6 **STANDBY switch**
Slide down when the camera is not in use to avoid pressing START/STOP button accidentally.

7 **START/STOP button** ⑭
Press to start and stop recording.

8 **CAMERA connector** (12-pin) ⑥

9 **Built-in microphone** (stereo)

10 **MIC jack** (stereo minijack) and **DC OUT** (microphone power output) **jack**
Connect an external microphone. The MIC jack accepts Sony "plug-in-power" microphones and supplies power to them. For attachment of an external microphone, use Sony VCT-55L shoe adaptor (not supplied).

11 **Lithium battery compartment** ⑧

12 **EVF (electronic viewfinder) ON/OFF switch** ⑮

13 **Grip strap** ⑫

14 **Power zoom button** ㉕

15 **Tally lamp**
Lights during recording. Blinks when the battery of the connected video equipment has been exhausted or when the tape has reached its end.

16 **Zoom lever and Macro set button** ㉖ ㉘

17 **Focus ring** ⑲

18 **Tripod receptacle (bottom)**

19 **FOCUS button** ⑲

20 **BACK LIGHT button** ㉓

21 **SUPERIMPOSE ON/OFF button** ㉛
Used to record a title.

22 **MEMORY button** ㉝

23 **COLOUR/MODE button** ㉙ ㉜

24 **DATE (+) button and TIME (NEXT) button** ⑨ ⑮

25 **WHT BAL (white balance) button** ㉑

26 **SHUTTER SPEED button** ㉕

27 **AUTO LOCK switch** ⑪ ⑯
Normally set to the left AUTO LOCK position (green position).

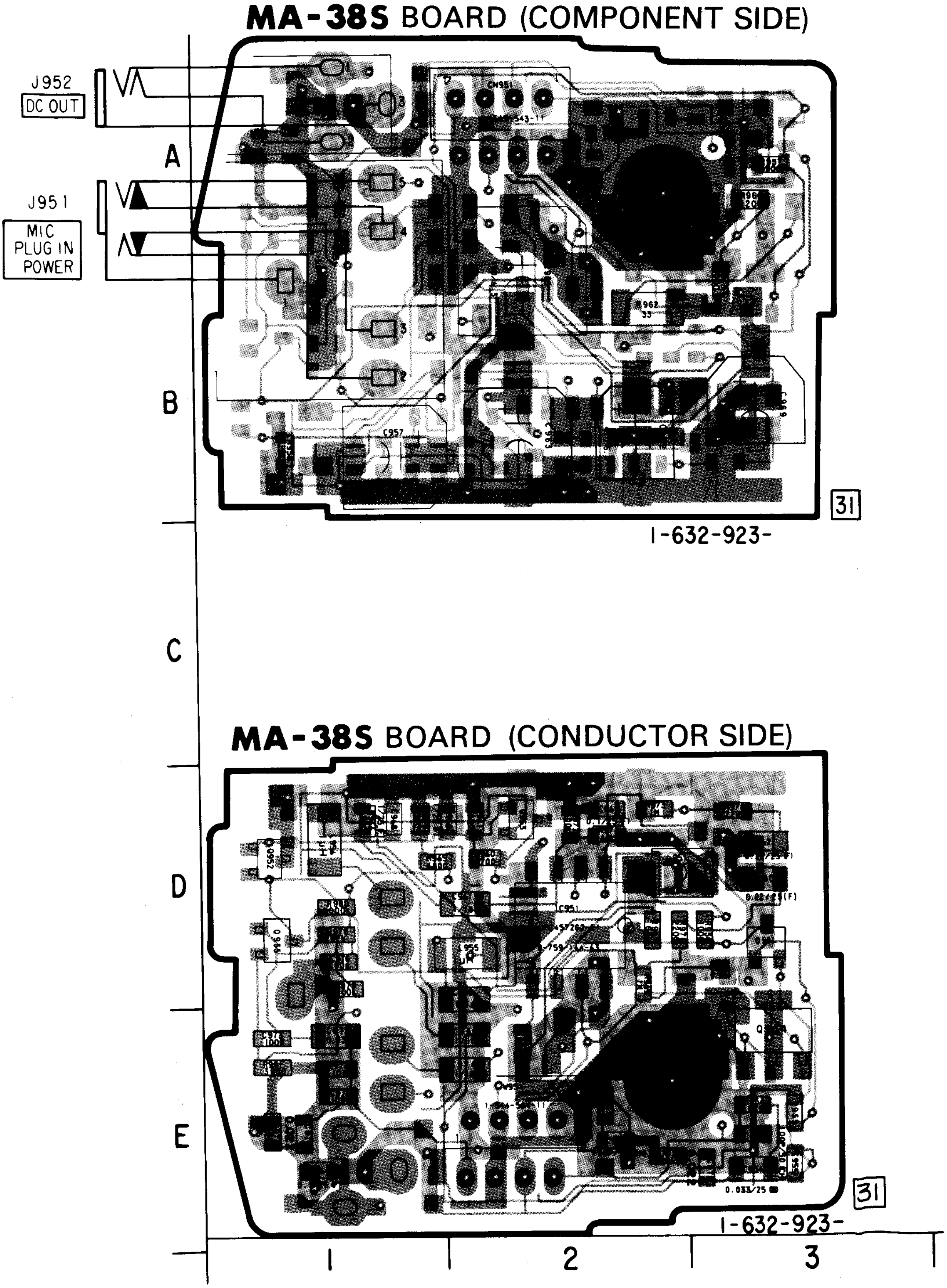
This section is extracted from instruction manual.

SECTION 2

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

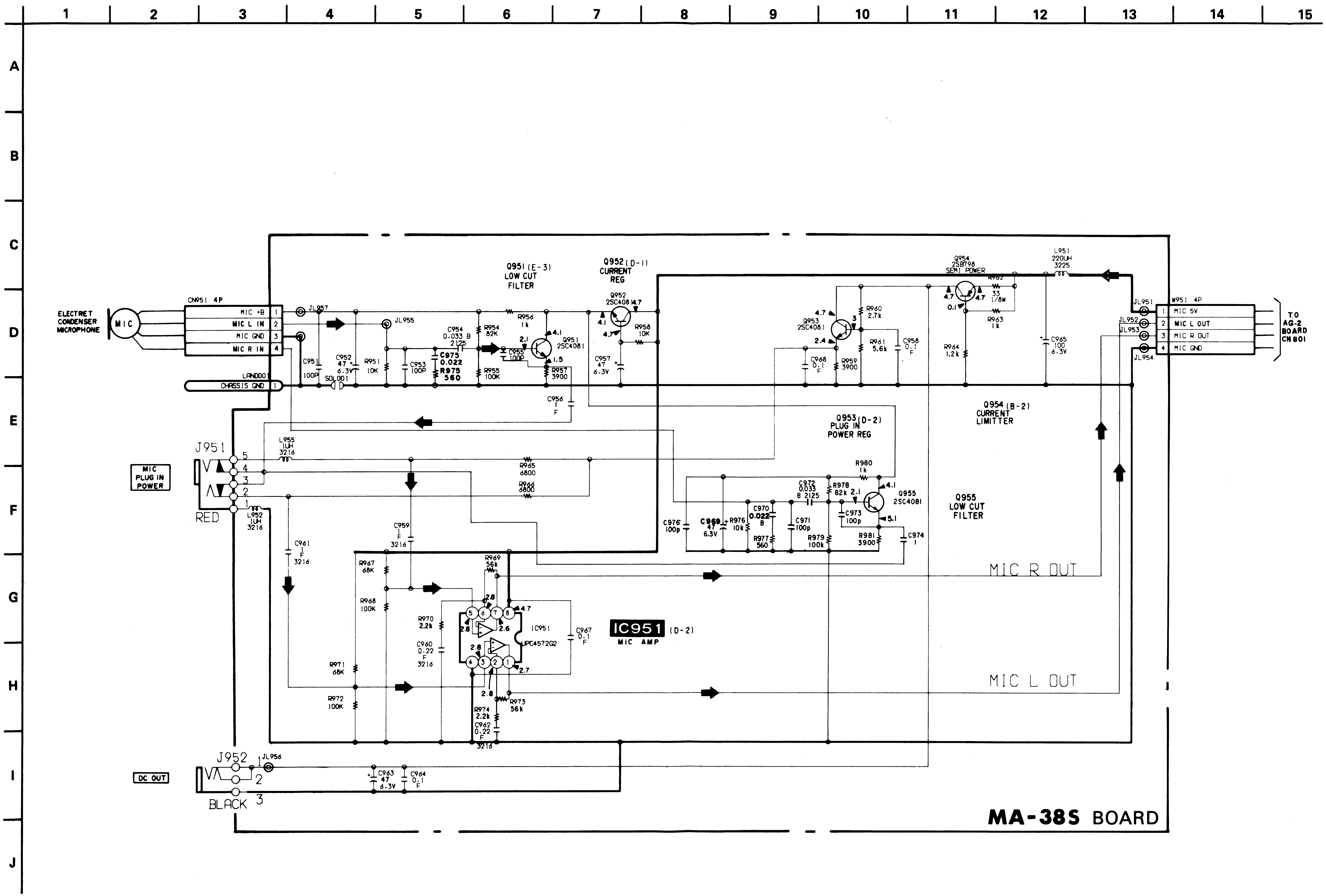
MA-38S (MIC AMP) PRINTED WIRING BOARD

– Ref. No.: MA-38 board; 2,000 Serieas –


MA-38S BOARD (COMPONENT SIDE)
J952
DC OUT
J951
MIC
PLUG IN
POWER
A
B
C
D
E
CW951
C957
R962
33
31
1-632-923-
MA-38S BOARD (CONDUCTOR SIDE)
C951
C955
0.033/25
31
1-632-923-
1
2
3

MA-38S (MIC AMP) SCHEMATIC DIAGRAM

– Ref. No.: MA-38 board; 2,000 Serieas –


ELECTRET CONDENSER MICROPHONE
MIC
CN951 4P
MIC +B
MIC L IN
MIC GND
MIC R IN
LAND001
CHASSIS GND
JL957
JL955
JL951
JL952
JL953
JL954
JL956
Q951 (E-3) LOW CUT FILTER
Q952 (D-1) CURRENT REG
Q952 2SC4081
Q951 2SC4081
Q953 2SC4081
Q954 2SB798 SEMI POWER
Q955 2SC4081
Q953 (D-2) PLUG IN POWER REG
Q954 (B-2) CURRENT LIMITTER
Q955 LOW CUT FILTER
L951 220UH 3225
L955 1UH 3216
L952 1UH 3216
C951 100P
C952 47 6.3V
R951 10K
C953 100P
C954 0.033 B 2125
C975 0.022
R975 560
R954 82K
R955 100K
R956 1k
C955 100P
R957 3900
C956 1 F
C957 47 6.3V
R958 10K
R960 2.7k
R961 5.6k
C958 0.1 F
C968 0.1 F
R959 3900
R962 33 1/8W
R963 1k
R964 1.2k
C965 100 6.3V
W951 4P
MIC 5V
MIC L OUT
MIC R OUT
MIC GND
TO AG-2 BOARD CN801
SOL001
J951
MIC PLUG IN POWER
RED
R965 6800
R966 6800
C959 1 F 3216
C961 1 F 3216
R980 1k
C972 0.033 B 2125
R978 82k
C973 100p
R981 3900
C974 1
C976 100p
C969 47 6.3V
R976 10k
C970 0.022 B
R977 560
C971 100p
R979 100k
R967 68K
R968 100K
R969 56k
R970 2.2k
C960 0.22 F 3216
IC951
μPC4572G2
C967 0.1 F
IC951 (D-2) MIC AMP
R971 68K
R972 100K
R973 56k
R974 2.2k
C962 0.22 F 3216
MIC R OUT
MIC L OUT
J952
DC OUT
BLACK
C963 47 6.3V
C964 0.1 F
MA-38S BOARD

SECTION 3
DIFFERENT PARTS LIST

NOTE:
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

※: Page on CCD-G100E Service Manual.

• Page 109 ※

EXPLODED VIEW

No.	Part No.	Description
68	★ A-7071-168-A	MA-38S BOARD, COMPLETE

• Page 124 ※

MISCELLANEOUS

Ref. No.	Part No.	Description
	1-542-149-11	MICROPHONE, STEREO
S951	1-572-168-21	SWICH, PUSH (ZOOM)

• Page 124 ※

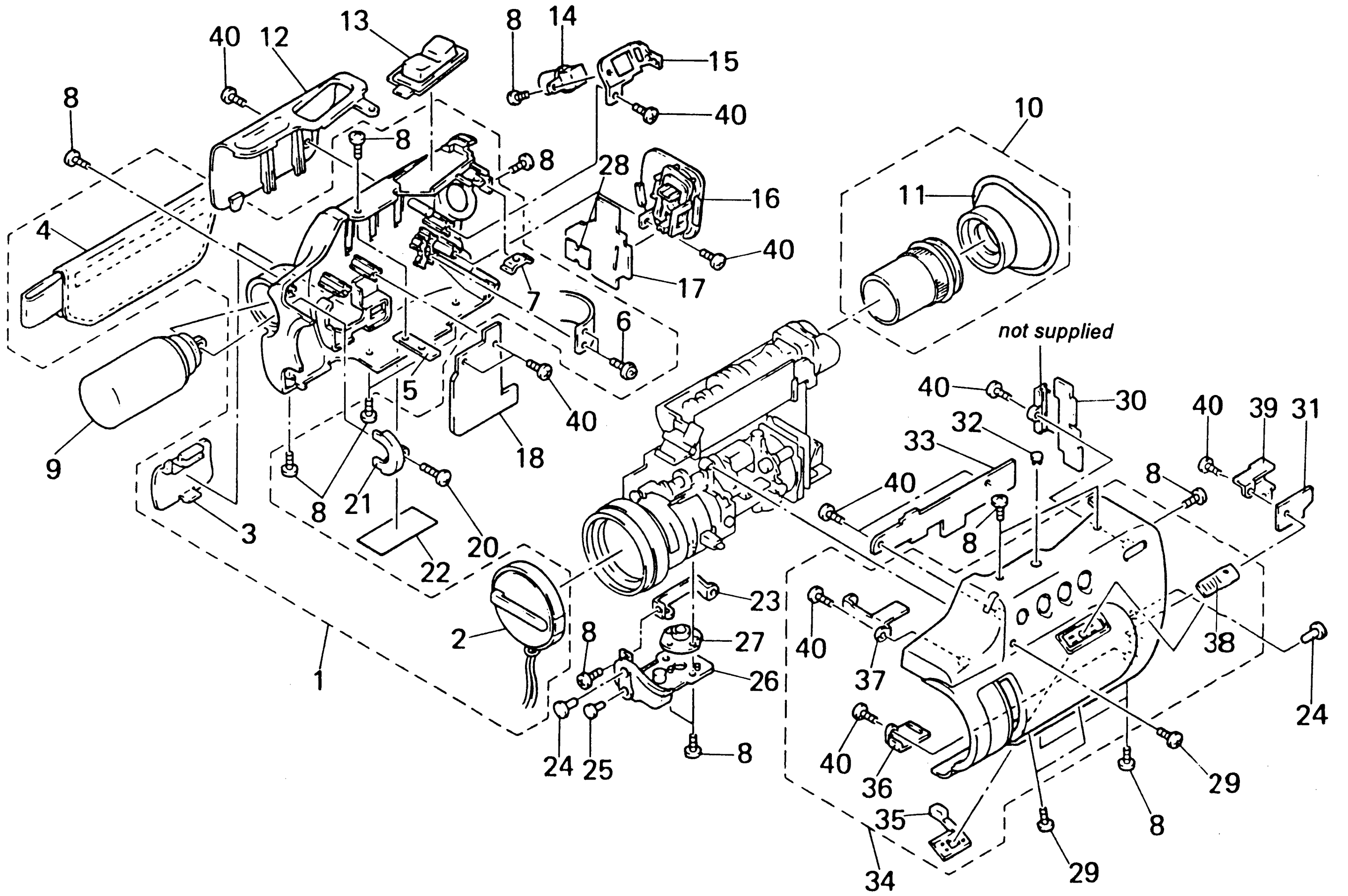
ACCESSORIES AND PACKING MATERIALS

Part No.	Description
★ 3-741-258-01	CUSHION (UPPER)
★ 3-741-259-01	CUSHION (LOWER)
★ 3-741-256-11	INDIVIDUAL CARTON
3-751-768-11	MANUAL, INSTRUCTION (ENGLISH)
3-751-768-41	MANUAL, INSTRUCTION (FRENCH, GERMAN, SPANISH)
3-751-768-51	MANUAL, INSTRUCTION (SWEDISH, DUTCH, ITALIAN)

SECTION 4
EXPLODED VIEW

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

4-1. CABINET ASSEMBLY



No.	Part No.	Description	Remark
1	A-7081-156-A	CABINET (L) BLOCK ASSY	2-8
2	A-7091-015-B	CAP ASSY, LENS	
3	3-741-222-11	LID, BATTERY CASE	
4	3-736-807-01	BELT, GRIP	
5	3-741-211-01	NUT (D), PLATE	
6	3-669-480-21	+ PTPWH 2	
7	3-741-205-01	NUT (A), PLATE	
8	3-719-381-01	SCREW (M2X4)	
9	1-542-149-11	MICROPHONE, STEREO	
10	A-7081-155-A	FINDER BLOCK ASSY	11
11	3-733-922-01	EYE CUP	
12	3-741-226-31	COVER, ZOOM BUTTON	
13	1-572-168-21	SWITCH, PUSH (ZOOM) (S951)	
14	1-575-245-11	CORD, CONNECTION	
15	*3-741-202-01	BRACKET, CAMERA CONNECTOR	
16	X-3741-212-1	BUTTON ASSY, S/S	
17	*1-632-926-11	ST-28 BOARD	
18	*1-632-927-11	LI-15 BOARD	
20	2-370-905-41	SCREW (B) (2X10), TAPPING	
21	3-747-376-01	HOLDER, MICROPHONE	
22	*3-940-429-01	LABEL, MODEL NUMBER (AEP)	
23	3-741-237-01	NUT (L), PLATE	
24	3-728-267-01	COVER, 3.5 JACK (MIC/REMOTE ZOOM)	
25	3-728-266-01	COVER, 2.5 JACK (DC OUT)	
26	3-741-218-21	CABINET (FRONT)	
27	3-716-454-01	SCREW, TRIPOD	
28	*3-741-243-01	REINFORCEMENT, ST	
29	3-719-408-01	SCREW (B2), TAPPING, P3	
30	*1-632-929-11	FK-17 BOARD	
31	*1-632-924-21	JK-48 BOARD	
32	3-741-201-11	BLIND, VR	
33	*1-632-928-11	FK-13 BOARD	
34	X-3940-082-1	CABINET (R) ASSY	35-38, 40
35	3-741-204-01	BASE, KNOB, AUTO LOCK	
36	3-741-210-01	BRACKET, BELT	
37	3-741-238-01	NUT (Z), PLATE	
38	3-741-203-11	KNOB, AUTO LOCK	
39	3-741-239-01	REINFORCEMENT, JK	
40	3-713-790-21	SCREW (M2X6), TAPPING, P3	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

Ref.No	Part No.	Description		Remark
	*A-7071-168-A	MA-38S BOARD, COMPLETE **********************		
		CAPACITOR		
C951	1-162-927-11	CERAMIC CHIP 100PF	5%	50V
C952	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C953	1-162-927-11	CERAMIC CHIP 100PF	5%	50V
C954	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V
C955	1-162-927-11	CERAMIC CHIP 100PF	5%	50V
C956	1-164-634-11	CERAMIC CHIP 1MF		16V
C957	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C958	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C959	1-164-634-11	CERAMIC CHIP 1MF		16V
C960	1-164-222-11	CERAMIC CHIP 0.22MF		25V
C961	1-164-634-11	CERAMIC CHIP 1MF		16V
C962	1-164-222-11	CERAMIC CHIP 0.22MF		25V
C963	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C964	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C965	1-126-206-11	ELECT CHIP 100MF	20%	6.3V
C967	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C968	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C969	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C970	1-164-227-11	CERAMIC CHIP 0.022MF	10%	25V
C971	1-162-927-11	CERAMIC CHIP 100PF	5%	50V
C972	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V
C973	1-162-927-11	CERAMIC CHIP 100PF	5%	50V
C974	1-164-634-11	CERAMIC CHIP 1MF		16V
C975	1-164-227-11	CERAMIC CHIP 0.022MF	10%	25V
C976	1-162-927-11	CERAMIC CHIP 100PF	5%	50V
		CONNECTOR		
CN951	*1-565-543-11	PIN, CONNECTOR (PC BOARD) 4P		
		IC		
IC951	8-759-111-56	IC UPC4572G2		
		JACK		
J951	1-507-899-00	JACK (SMALL TYPE) (MIC PLUG IN POWER)		
J952	1-563-454-11	JACK, MINIATURE (DC OUT)		
		COIL		
L951	1-410-658-31	INDUCTOR CHIP 220UH		
L955	1-410-192-51	INDUCTOR CHIP 1UH		
L956	1-410-192-51	INDUCTOR CHIP 1UH		
		TRANSISTOR		
Q951	8-729-905-35	TRANSISTOR 2SC4081R		
Q952	8-729-905-35	TRANSISTOR 2SC4081R		
Q953	8-729-905-35	TRANSISTOR 2SC4081R		
Q954	8-729-101-07	TRANSISTOR 2SB798-DL		
Q955	8-729-905-35	TRANSISTOR 2SC4081R		

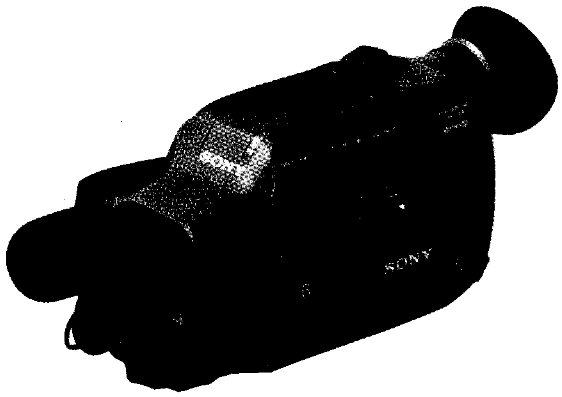
Ref.No	Part No.	Description			Remark
		RESISTOR			
R951	1-216-833-11	METAL GLAZE 10K	5%	1/16W	
R954	1-216-844-11	METAL GLAZE 82K	5%	1/16W	
R955	1-216-845-11	METAL GLAZE 100K	5%	1/16W	
R956	1-216-821-11	METAL GLAZE 1K	5%	1/16W	
R957	1-216-828-11	METAL GLAZE 3.9K	5%	1/16W	
R958	1-216-833-11	METAL GLAZE 10K	5%	1/16W	
R959	1-216-828-11	METAL GLAZE 3.9K	5%	1/16W	
R960	1-216-826-11	METAL GLAZE 2.7K	5%	1/16W	
R961	1-216-830-11	METAL GLAZE 5.6K	5%	1/16W	
R962	1-216-162-00	METAL GLAZE 33	5%	1/8W	
R963	1-216-821-11	METAL GLAZE 1K	5%	1/16W	
R964	1-216-822-11	METAL GLAZE 1.2K	5%	1/16W	
R965	1-216-831-11	METAL GLAZE 6.8K	5%	1/16W	
R966	1-216-831-11	METAL GLAZE 6.8K	5%	1/16W	
R967	1-216-843-11	METAL GLAZE 68K	5%	1/16W	
R968	1-216-845-11	METAL GLAZE 100K	5%	1/16W	
R969	1-216-842-11	METAL GLAZE 56K	5%	1/16W	
R970	1-216-825-11	METAL GLAZE 2.2K	5%	1/16W	
R971	1-216-843-11	METAL GLAZE 68K	5%	1/16W	
R972	1-216-845-11	METAL GLAZE 100K	5%	1/16W	
R973	1-216-842-11	METAL GLAZE 56K	5%	1/16W	
R974	1-216-825-11	METAL GLAZE 2.2K	5%	1/16W	
R975	1-216-818-11	METAL GLAZE 560	5%	1/16W	
R976	1-216-833-11	METAL GLAZE 10K	5%	1/16W	
R977	1-216-818-11	METAL GLAZE 560	5%	1/16W	
R978	1-216-844-11	METAL GLAZE 82K	5%	1/16W	
R979	1-216-845-11	METAL GLAZE 100K	5%	1/16W	
R980	1-216-821-11	METAL GLAZE 1K	5%	1/16W	
R981	1-216-828-11	METAL GLAZE 3.9K	5%	1/16W	

****

CCD-G100E

SERVICE MANUAL

AEP Model



SPECIFICATIONS

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Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (black and white)
Lens	Combined 6 x power zoom lens, f=11 – 66 mm, F 2.0 with macro Filter diameter: 37 mm
Auto focus system	TTL
Colour temperature	AUTO: HOLD, INDOOR (3200K), OUTDOOR (5800K)
Minimum illumination	9 lux (F2.0)
Illumination range	9 lux – 100,000 lux
Recommended illumination	More than 300 lux
Aperture correction	Automatic

Input and output connector

CAMERA connector	12-pin
REMOTE ZOOM jack	Stereo minijack
MIC jack	Stereo minijack, –66 dBs, low impedance with 2.5 – 3 V DC output, impedance 6.8 kilohms
Microphone power output jack	Special minijack, 5 V DC

General

Power consumption	3.5 W
Installation	Vertically, horizontally
Operating temperature	0°C to 40°C
Storage temperature	–20°C to +60°C
Dimensions	Approx. 86.6 × 80 × 209.6 mm (w/h/d) (3 1/2 × 3 1/4 × 8 3/8 inches)
Weight	Approx. 455 g (1 lb.)
Microphone	Electret condenser microphone, omni-directional monaural type

Design and specifications are subject to change without notice.

MICROFILM

COLOUR VIDEO CAMERA

SONY®

Overview of the CCD-G100E

The CCD-G100E is a compact colour video camera for use with the Sony GV-8E/9E Video Walkman or other VTR using the Sony HVA-G1E AC power adaptor. (The HVA-G1E is not available in the United Kingdom.)
The CCD-G100E has the following features.

- x6 power zooming with Macro function
- Six shutter speeds selectable, from 1/50 to 1/4000
- Date or time superimposing
- Title superimposing, title scrolling or title reverse mode
- TTL system auto focusing

Supplied Accessories

The video camera is packed together with the following units. Check to see that everything is contained in the package. (*Attached to the camera)

Camera connecting cable (1)
Carrying strap (1)
Lithium battery (1)
Remote Commander for zooming (1)
Lens cap (1)*
Jack cover (1 set)*
European guarantee certificates (1)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

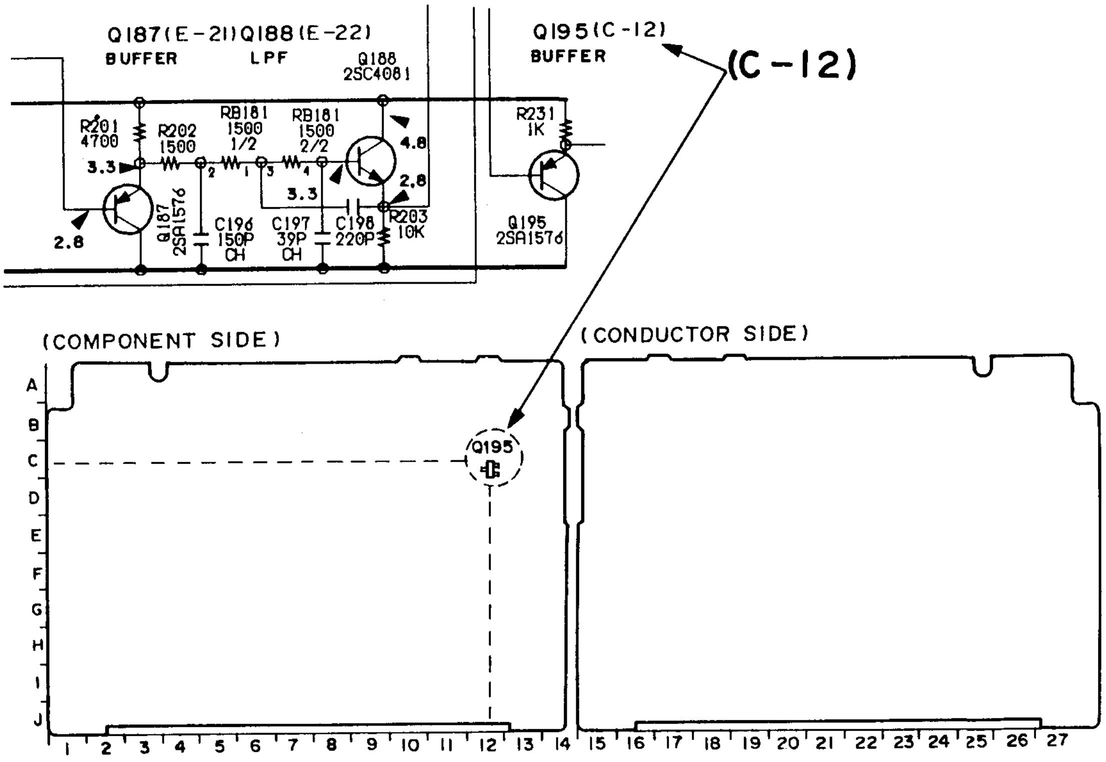
1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

[SERVICE NOTE]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red sa shown below. This enables to find the location on the board easily when servicing.


Q187(E-21)Q188(E-22)
BUFFER
LPF
Q188
2SC4081
Q195(C-12)
BUFFER
(C-12)
R201
4700
R202
1500
RB181
1500
1/2
RB181
1500
2/2
4.8
3.3
2.8
3.3
2.8
Q187
2SA1576
C196
150P
CH
C197
39P
CH
C198
220P
R203
10K
R231
1K
Q195
2SA1576
(COMPONENT SIDE)
(CONDUCTOR SIDE)
Q195
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
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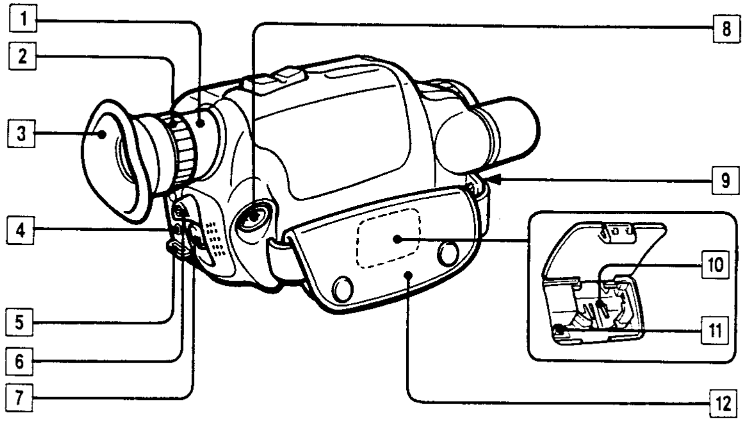
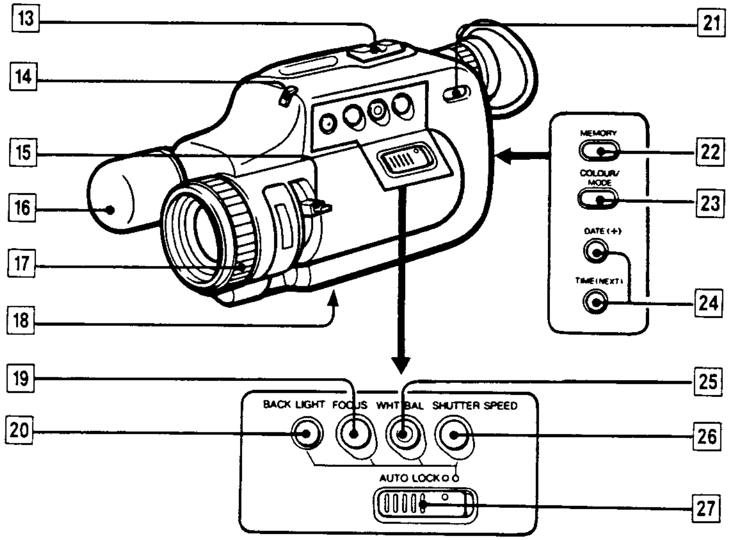
This section is extracted from instruction manual.

Identifying the Parts

For details on the use of each control, refer to the pages indicated in the circle.





1 **Viewfinder**
The picture being recorded can be monitored in monochrome. Also various mode indications are displayed here.

2 **Viewfinder lens adjustment ring** ⑫

3 **Eyecup**

4 **REMOTE ZOOM connector** ㉗
Connect the supplied Remote Commander for zooming.

5 **Hook for carrying strap**

6 **STANDBY switch**
Slide down when the camera is not in use to avoid pressing START/STOP button accidentally.

7 **START/STOP button** ⑭
Press to start and stop recording.

8 **CAMERA connector** (12-pin) ⑥

9 **MIC jack** (stereo minijack) and **DC OUT** (microphone power output) **jack**
Connect an external microphone. The MIC jack accepts Sony "plug-in-power" microphones and supplies power to them. For attachment of an external microphone, use Sony VCT-55L shoe adaptor (not supplied).

10 **Lithium battery compartment** ⑧

11 **EVF (electronic viewfinder) ON/OFF switch** ⑮

12 **Grip strap** ⑫

13 **Power zoom button** ㉖

14 **Tally lamp**
Lights during recording. Blinks when the battery of the connected video equipment has been exhausted or when the tape has reached its end.

15 **Zoom lever and Macro set button** ㉖ ㉘

16 **Microphone** (monaural)

17 **Focus ring** ⑲

18 **Tripod receptacle (bottom)**

19 **FOCUS button** ⑲

20 **BACK LIGHT button** ㉓

21 **SUPERIMPOSE button** ㉛
Used to record a title.

22 **MEMORY button** ㉚

23 **COLOUR/MODE button** ㉙ ㉜

24 **DATE (+) button and TIME (NEXT) button** ⑨

25 **WHT BAL (white balance) button** ㉑

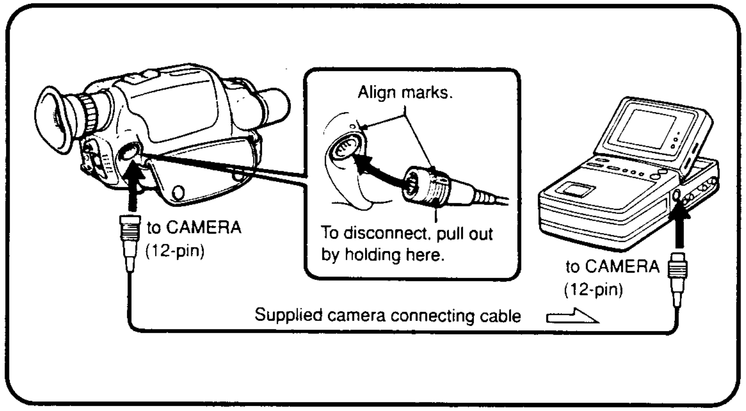
26 **SHUTTER SPEED button** ㉕

27 **AUTO LOCK switch** ⑯
Normally set to the left AUTO LOCK position (green position).

Connecting Video Equipment

The CCD-G100E can be connected to
- video equipment such as a Video Walkman equipped with a 12-pin connector using a single cable.
- video equipment not equipped with a 12-pin connector using the optional HVA-G1E AC power adaptor.

Connecting the GV-8E/9E Video Walkman

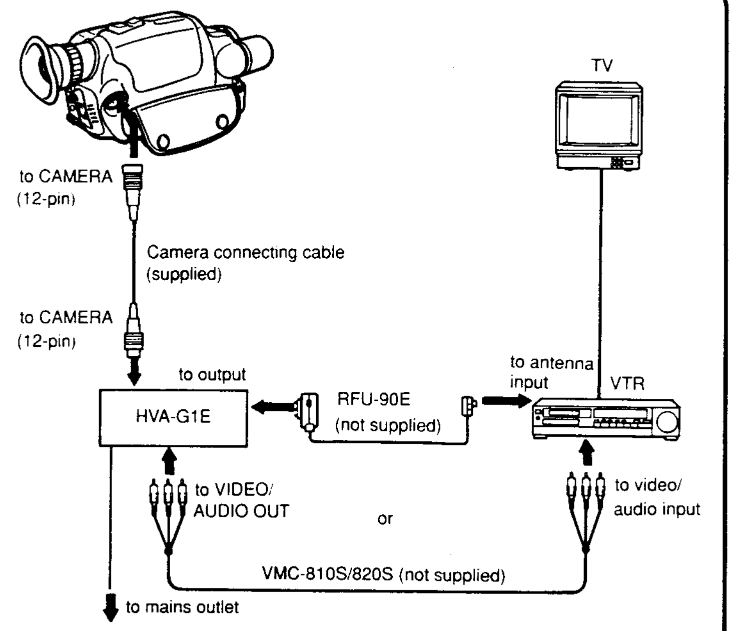

Align marks.
to CAMERA
(12-pin)
To disconnect, pull out by holding here.
to CAMERA
(12-pin)
Supplied camera connecting cable

Note on connection with the GV-8E/9E
The power will not be supplied to the CCD-G100E while the GV-8E/9E is in fast-forward or rewind mode. The power will be supplied again when fast-forward or rewind mode is stopped.

Notes on connections
- Before connecting, turn off the power of the equipment to be used. Note that some video equipment may start recording if it is set to the recording pause mode when the camera is connected.
- When the camera cable is extended with an extension cable, check the picture quality in a trial recording.

Connecting a VTR Not Equipped with a 12-pin Camera Connector And a TV

Use the optional HVA-G1E AC power adaptor. When connecting a VTR without an input selector, the RFU-90E RFU adaptor (not supplied) is required.

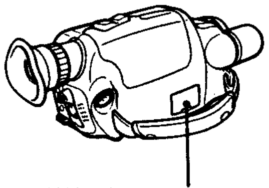

TV
to CAMERA
(12-pin)
Camera connecting cable
(supplied)
to CAMERA
(12-pin)
to output
HVA-G1E
RFU-90E
(not supplied)
to antenna input
VTR
to VIDEO/
AUDIO OUT
or
to video/
audio input
VMC-810S/820S (not supplied)
to mains outlet

- For details on the connection, please refer to the instruction manual of the HVA-G1E AC power adaptor.
- Even if the connected VTR is a stereo type, the sound is recorded in manaural.

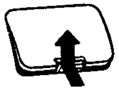
For customers in the United Kingdom
The HVA-G1E AC power adaptor is not available in the United Kingdom.
For connection, consult your Sony service facility.

Installing a Lithium Battery

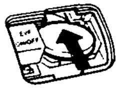
Install the supplied lithium battery to activate the clock and keep a title in memory.



1 **Open the cover of the lithium battery compartment.**



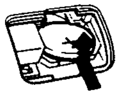
2 **Insert the supplied CR2025 lithium battery with the + side facing out.**



Close the cover.

To remove the lithium battery

Press the side of the battery and lift it.



Notes on lithium battery life

The battery will last for approximately 1 year in normal operation.

When the lithium battery becomes weak, the time indication on the viewfinder screen blinks for 5 seconds if the power for the video camera is supplied from the connected video equipment. In this case, **replace the battery with a Sony CR2025 or a battery with one of the same type and rating.**

After replacing the battery, readjust the date and time and titles. (If the battery is replaced with the power supplied to the camera, the readjustments are not necessary.)

Cautions

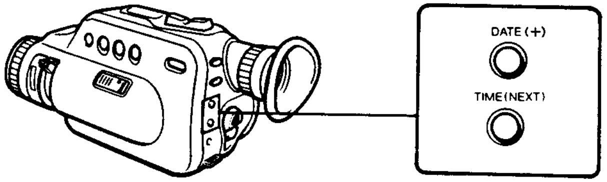
- Keep the lithium battery out of the reach of children.
  Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to assure a good contact.
- Be sure to observe the correct polarity when installing the battery.
- Do not hold the battery with metallic tweezers, otherwise a short-circuit may occur.
- Battery may explode if mistreated.
  Do not recharge, disassemble or dispose of it in fire.

Setting the Date and Time

Before setting

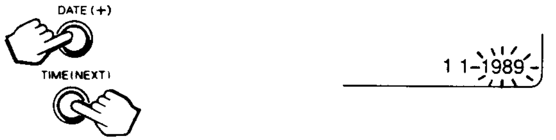
- Connect video equipment and supply the power to the camera. (See pages 6 and 7.)
- Install the supplied lithium battery. (See page 8.)

Setting the Date And Time

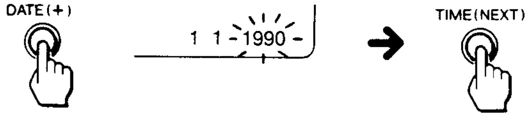


Date or time indication appears in the viewfinder.

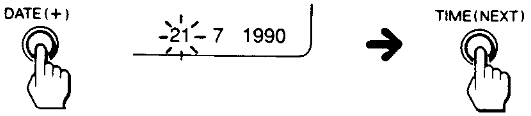
1 **Press DATE (+) and TIME (NEXT) simultaneously for more than 3 seconds until the year indication blinks.**



2 **Set the year.**
Adjust the blinking digits with DATE (+) and then press TIME (NEXT).

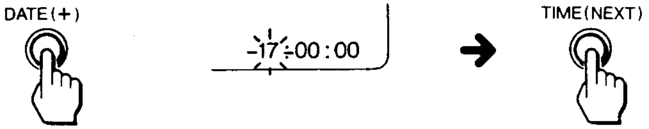


3 **Set the month and day.**
Adjust the blinking digits with DATE (+) and then press TIME (NEXT).

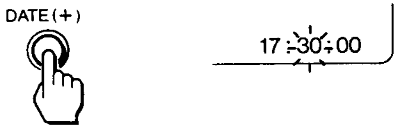


(continued)

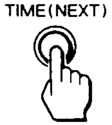
4 **Set the hour.**
Adjust the blinking digits with DATE (+) and then press TIME (NEXT).



5 **Set the minute.**
Adjust the blinking digits with DATE (+) button.



6 **Press TIME (NEXT) at the same time with an announced time signal.**



The clock starts operating.

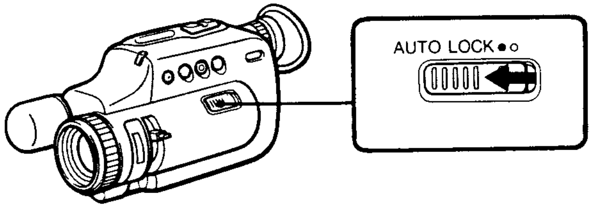
To readjust the date or time
Repeat the above procedure from step 1.

To advance the digits faster
Keep DATE (+) pressed.

To check the preset date or time
When the power for the video camera is supplied from the connected video equipment, press DATE (+) to check the date and press TIME (NEXT) to check the time.

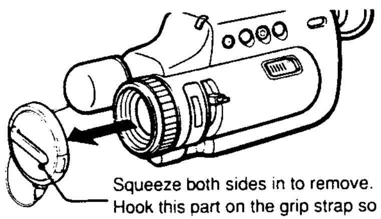
Before You Start Recording

1 **Set AUTO LOCK to AUTO LOCK (green position).**
The white balance, shutter speed (1/50 normal speed) and focus are adjusted automatically.



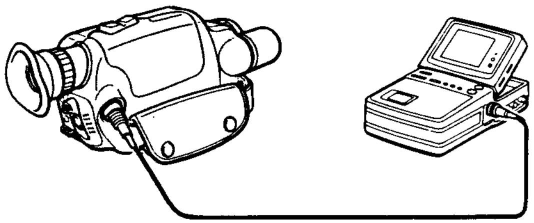
- If you want to use manual adjustments, see pages 16 to 25.

2 **Remove the lens cap.**



Squeeze both sides in to remove.
Hook this part on the grip strap so it will not get lost.

3 **Connect video equipment and turn on its power.**

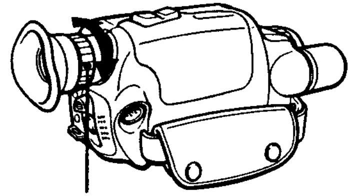


(continued)

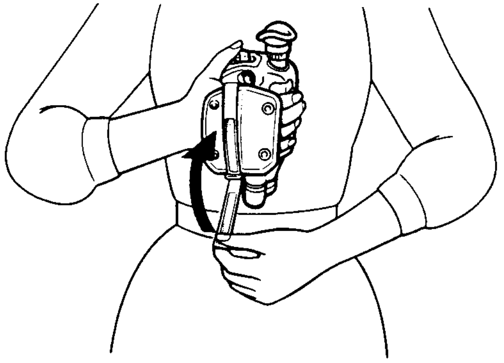
4 **Adjust the position of the viewfinder lens.**
The position of the viewfinder lens for optimum vision varies depending on the person.

This adjustment is necessary
— for your initial use.
— for use after someone else.

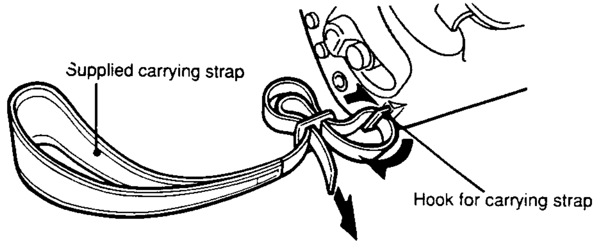
Turn the viewfinder lens adjustment ring so that the subject on the viewfinder screen comes into sharp focus.


Viewfinder lens adjustment ring

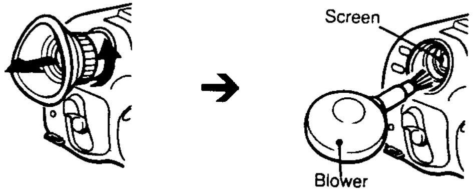
5 **Adjust the grip strap**
Hold the camera against you as illustrated, adjust the length so that your thumb can easily manipulate the START/STOP button, and then secure the grip strap.



To attach the supplied carrying strap

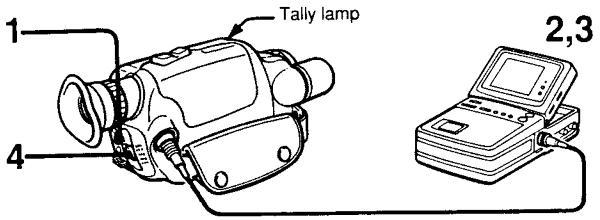

Supplied carrying strap
Hook for carrying strap

To remove dust from inside the viewfinder
Detach the eyecup and clean the surface of the screen with a blower.


Screen
Blower

Recording a Picture Using Automatic Adjust-ments

Make sure the preparations on pages 6 through 13 are completed.

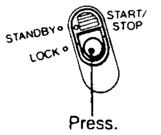


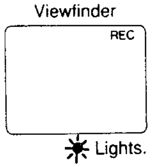
1 Slide STANDBY up to expose the START/STOP button.

2 Turn on the power of the connected video equipment and set the input selector to CAMERA.

3 Insert a cassette into the video equipment and set it to recording pause mode.

4 Press START/STOP on the video camera.





- The tally lamp on the camera also lights.

To pause (to stop momentalily)
Press START/STOP again.
The tally lamps in the viewfinder and on the camera go off.
Press the button again to resume recording.

To stop
Press the stop button on the video equipment. Turn off the power of the video equipment.

Notes on recording

- The STANDBY switch on the video camera does not function.
- Do not turn or stop the focus ring forcibly.
- In some video equipment the tally lamp in the viewfinder may blink and then remain lit when recording starts. The REC indicator does not appear during blinking.
- If the tally lamp in the viewfinder continues blinking, the battery of the connected video equipment is exhausted or the tape has reached its end. As the recorded picture may be distorted when the battery becomes weak, replace with a new battery at the earliest indication of battery exhaustion.
- When you record while monitoring the pictures and sound being recorded on a monitor with speakers, lower the volume or connect the headphones. Otherwise, the sound from the speakers will be re-recorded by the microphone of the video camera, which cause "howling".

Other note
The picture being played back with the connected video equipment cannot be seen on the viewfinder screen of the video camera.

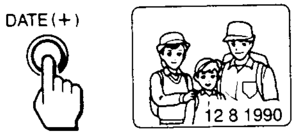
When you connect the camera to a VTR using the HVA-G1E AC power adaptor
Set the input selector on the VTR to line input. To start and stop recording, operate the buttons on the VTR.

When you need not watch the picture being recorded through the viewfinder of the video camera
Set the EVF ON/OFF switch inside the lithium battery compartment to OFF. This saves wear of the battery of the connected video equipment.

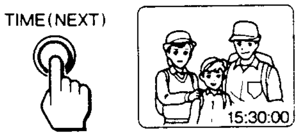
To Record the Date or Time

During recording, you can record the current date and time.

To record the date



To record the time

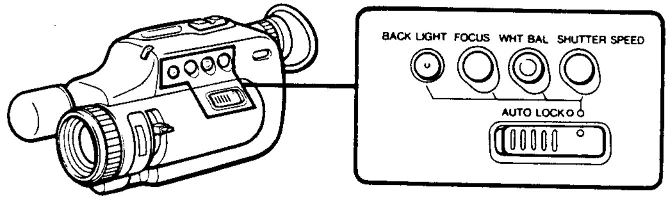


The date or time displayed in the viewfinder is recorded together with the picture.

To stop recording the date or time
Press DATE(+) or TIME(NEXT) again. The picture recording continues.

Selecting the Automatic or Manual Adjustment

When AUTO LOCK is set to AUTO LOCK (green position), the white balance, shutter speed (1/50) and focus are adjusted automatically. But under certain circumstances, manual adjustment is better for effective shooting. For manual adjustment, set AUTO LOCK to the right position and then adjust with each button.



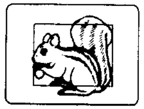
Item	See page
Focus	17
White balance	20
Shutter speed	24
Back light mode	23

Notes

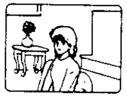
- Just after the power is supplied to the camera, the AUTO LOCK function will work regardless of the position of the AUTO LOCK switch.
- If AUTO LOCK is set to AUTO LOCK after you have made a manual adjustment, and then set to the right position again, the previous manual setting will be recalled.

Manual Focusing

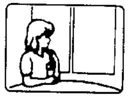
Under most shooting condition, the Auto Focus function of this video camera brings the subject into focus automatically.
But manual focusing is recommended in the conditions listed below.


Focus is achieved in this range.

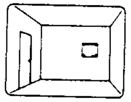
- Insufficient light



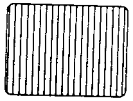
- Too much brightness behind the subject



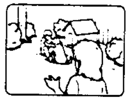
- Subjects with little contrast – wall, sky, etc.



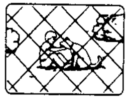
- Finely detailed repetitive patterns



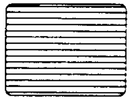
- One subject is close; the other is in the center, but at a distance



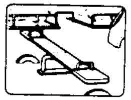
- Subjects beyond nets, etc. or when another subject passes across the camera



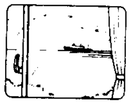
- Horizontal stripes



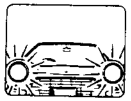
- Diagonal subject



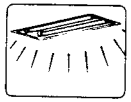
- Subject through frosted glass



- Bright subject or subject reflecting light

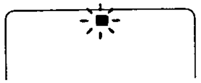


- When shooting under a fluorescent lamp at a shutter speed other than 1/50 or 1/120



Other uses of manual focusing

- ■ When the white mark on the viewfinder screen blinks

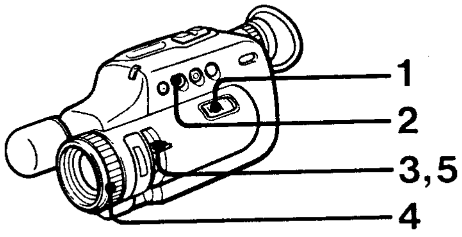


- ■ When using special effects lenses or filters
- ■ For focusing in close-up shooting (page 28)
- ■ When shooting a stationary subject using a tripod
- ■ To save wear of the battery of the connected video equipment
  When AUTO LOCK is set to AUTO LOCK, the autofocusing operates to move the focus ring automatically even in recording pause mode.

Autofocusing does not function momentarily when:

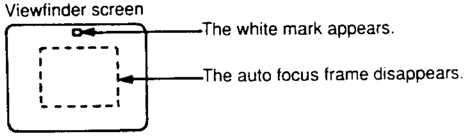
- The shutter speed or the white balance is changed
- The back light function is being adjusted
- Lighting conditions change quickly
- The zooming is changed from wide-angle to telephoto

Focusing Manually

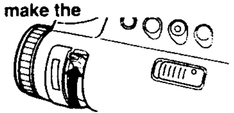


1 **Set AUTO LOCK to the right position.**

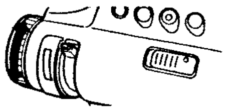
2 **Press FOCUS.**



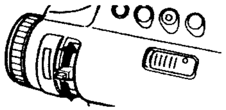
3 **Turn the zoom lever to the telephoto position (66) to make the subject as large as possible in the viewfinder.**



4 **Turn the focus ring to achieve sharp focus.**



5 **Turn the zoom lever to set the desired shot length.**

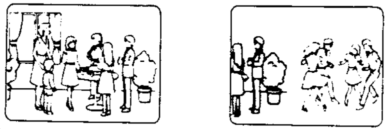
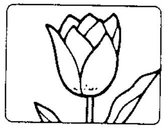
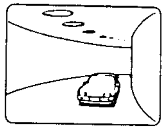
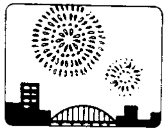


Some helpful hints

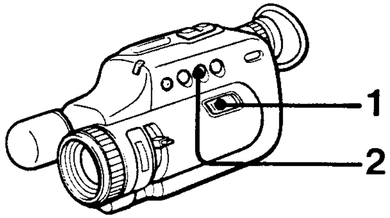
- When shooting a scene with lots of movement in bright light, set the zoom lever to the wide-angle position and the focus ring to 2 m, regardless of the distance between the subject and the camera.
- When shooting in relatively dark places such as indoors, the depth of field in proper focus is very shallow. For best results, shoot at wide angles, after focusing in telephoto.

Adjusting the White Balance

In most cases, the auto white balance function of the camera adjusts the white balance automatically. However, if it does not work correctly in the conditions listed below, adjust the white balance manually.

Shooting conditions		**Indications in the viewfinder**
■ Lighting conditions change quickly 		💡
■ Too bright such as in photograph studio.		💡
■ Monochromatic subject or background 		HOLD
■ Under special light conditions 	Sodium lamp	💡
	Mercury lamp	💡
	Colour matching fluorescent lamp	☀
■ Outdoors: a night view, neon sign or fireworks 		☀
■ Outdoors: scenes after sunset or scenes before sunrise.		☀

Adjusting the White Balance Manually



1 **Set AUTO LOCK to the right position.**

2 **Select the desired white balance mode by pressing WHT BAL.**

Each time you press the button, the indication changes as follows:

No indication (Auto) ——→ HOLD ——→ ☀
↑ —————— 💡 ←——

What is the HOLD mode?

When recording some subjects with different colour temperatures, use the HOLD mode to set a colour temperature and you can achieve a recording with natural colours without being affected by the surroundings.

To set the white balance to the HOLD mode

1 Set AUTO LOCK to the green position.
2 Point at and record a white, flat object such as a white wall or paper.
3 Set AUTO LOCK to the right position and press WHT BAL so that the HOLD indication appears in the viewfinder.

When the power is turned off or the light source is changed, follow the procedures above again.

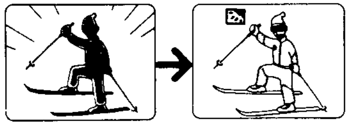
Colour Temperature and White Balance

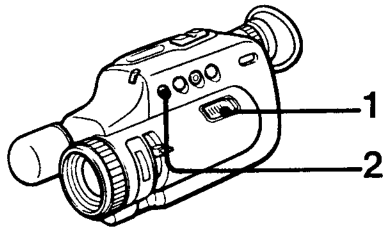
The colour temperature indicates a property of light and is measured in K (Kelvin). It increases as the light source gets bluer and decreases as the light source gets redder. It has no direct relationship with brightness.
This video camera automatically adjusts the white balance within the range shown below.

Colour temperature (K)		Light source
↑	10,000	Clear sky
	8,000	
Blue		Slightly overcast
	7,000	Cloudy, rainy
	6,000	Fluorescent lamp (daylight)
	5,000	
White		Direct sunlight
		Fluorescent lamp (white)
	4,000	1 hr. after/before sunrise/sunset
	3,500	Fluorescent lamp (off-white) Studio lamp Halogen lamp
	3,200	
	3,000	
		Tungsten lamp
Yellow		30 min. after/before sunrise/sunset
	2,500	
Red		
↓	2,000	Sunrise/sunset Candlelight

Shooting with Backlighting

In this camera the iris is automatically controlled.
However, when shooting a subject that is backlit, that is, the light source is coming in from the back of the subject, use BACK LIGHT.





1 **Set AUTO LOCK to the right position.**

2 **Press BACK LIGHT.**
The ▣ indication appears in the viewfinder.

After shooting

Be sure to release this adjustment condition by pressing BACK LIGHT again. (The ▣ indication goes out.)
Otherwise, the recorded picture will be too bright.

Setting Shutter Speed

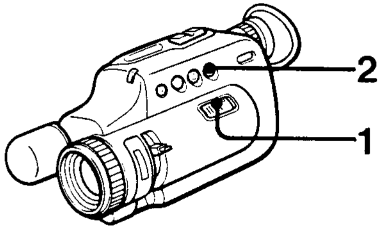
When a fast-moving subject is recorded at a normal shutter speed, the picture may not be seen clearly when played back. This can be improved by increasing the shutter speed.

Recommended Shutter Speed

Choose an appropriate shutter speed according to the situation, referring the examples listed below.

Example use	Recommended shutter speed
■ On clear days, recording golf or tennis swing (To view the hit ball clearly in the still picture mode, set to 1/4000) ■ On clear days, recording the skiers	1/4000 or 1/2000
■ On overcast days, recording a moving merry-go-round or roller coaster ■ Recording outdoors from inside a vehicle (for stable shooting)	1/1000 or 1/250
■ Instead of the ND2 filter (To reduce the exposure level to approx. 1/2) ■ Recording indoor sports (for stable shooting)	1/120

Selecting the Shutter Speed



1 **Set AUTO LOCK to the right position.**

2 **Press SHUTTER SPEED repeatedly until the desired shutter speed indication appears in the viewfinder.**

Each time you press the button, the indication changes as follows.

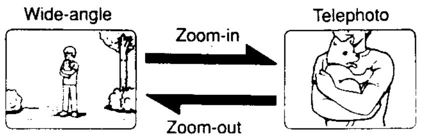
No indication → 120 → 250 → 1000 → 2000 → 4000
(1/50) (1/120) (1/250) (1/1000) (1/2000) (1/4000)

Notes

- When you select shutter speed 1/250 or faster, record under sunlight or use a video light.
- When you record at certain shutter speeds under a light discharged tube, such as a fluorescent lamp, sodium lamp, or mercury lamp, the brightness of the recorded picture may vary ("flicker").
- When you record a TV screen at certain shutter speeds, the brightness of the recorded picture may vary.
- When you shoot a very bright subject at a faster shutter speed, a light, vertical, belt-like line ("smear") may appear on the screen.

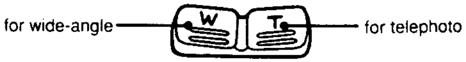
Zooming

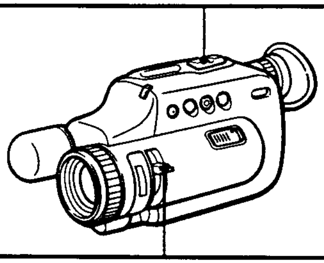
The size of the subject in the scene can be changed. Use "zoom-in" for dramatic close-ups. Use "zoom-out" for panoramic long shots. Also use zooming to focus manually or to decide the shooting angle.


Wide-angle
Zoom-in
Telephoto
Zoom-out

Power Zooming

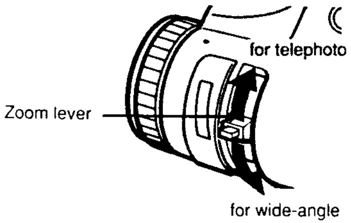
For smooth and constant zooming, press the power zoom button. The scene will gradually become telephoto or wide-angle.


for wide-angle
W
T
for telephoto



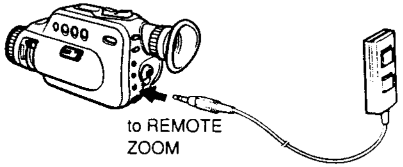
Zooming Manually

For a dramatic effect, turn the zoom lever.


for telephoto
Zoom lever
for wide-angle

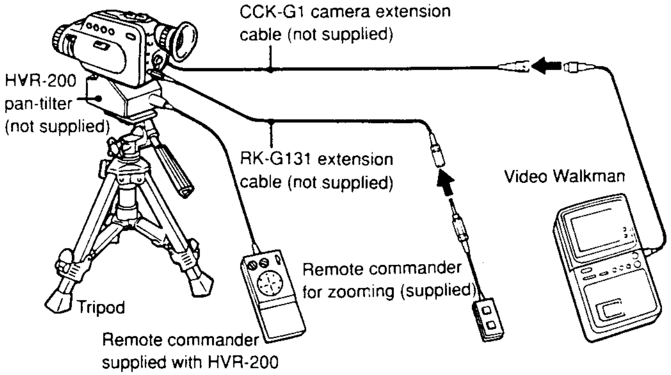
Power zooming with the supplied Remote Commander

Use of the supplied Remote Commander allows power zooming when you are apart from the camera. Press the TELE button for telephoto and the WIDE button for wide-angle.


to REMOTE ZOOM

To remotely control the CCD-G100E

Use Sony HVR-200 Pan-tilter. You can remotely pan or tilt the video camera from up to approximately 5 m (16 ft).


CCK-G1 camera extension cable (not supplied)
HVR-200 pan-tilter (not supplied)
RK-G131 extension cable (not supplied)
Video Walkman
Remote commander for zooming (supplied)
Tripod
Remote commander supplied with HVR-200

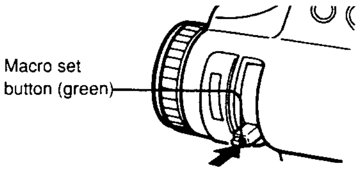
For more zooming effect
Use the VCL-1537 or VCL-0537 conversion lens (not supplied).
Auto focus, however, does not function in that case. Focus manually.

Focal length of this video camera
The focal length of this video camera is 11 mm to 66 mm.
Converted into the focal length of a 35-mm camera, this means approximately 58.5 mm to 351 mm.

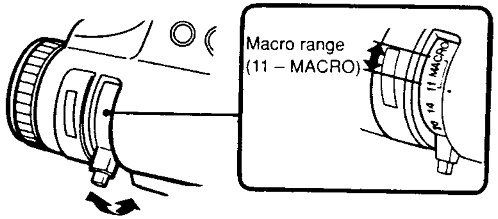
Close-ups (Macro)

Even tiny subjects can literally fill the screen for dramatic close-up effects.
It can be used to store a title.

1 Turn the zoom lever to the MACRO position, pressing the macro set button.
The subject can be as close as approximately 10 mm (13/32 in.) from the lens surface.



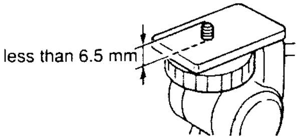
2 Turn the zoom lever within the MACRO range to focus sharply.



Autofocusing does not function in macro shooting.

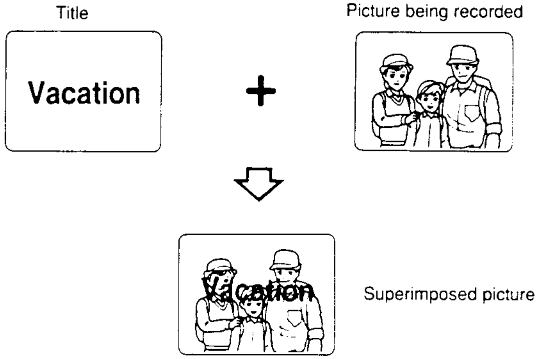
Use of a tripod

When shooting in macro, the depth of field is very shallow, so pay attention to focus.
To keep the subject in focus, use a tripod or monopod. When attaching a tripod not manufactured by Sony, the length of the camera mounting screw must be less than 6.5 mm ($2^5/_8$ in.) Otherwise, the screw may damage the inner parts of the camera.



Recording a Title

You can superimpose your own hand-lettered message or illustration over the picture during recording.



- One title can be stored.
- The colour of the title can be selected from 8 colours.

Before recording, store a message or an illustration in the camera.

To select the colour

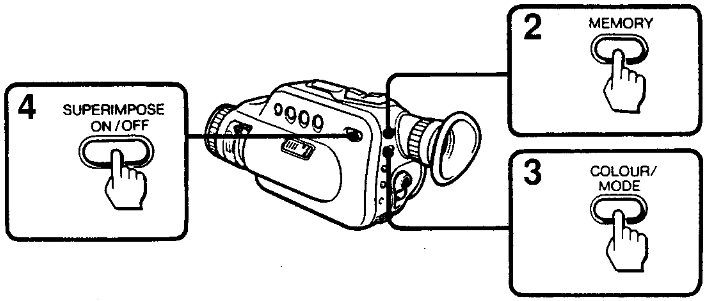
Press COLOUR/MODE until the desired indication appears while the title is displayed in the viewfinder.
Each time you press the button, the colour indication changes in the viewfinder, as follows.

→ WHT (white) → BLUE → GRN (Green) → CYAN → RED
— BLK (black) ← YEL (yellow) ← VIO (violet) ←

Storing a Title

Before Storing

- Make a desired title card.
  Use a plain, white card and draw a title with a dark colour in thick letters.
- Install the lithium battery. See page 8.
- Connect video equipment and set it to recording pause mode.



1 **Point the camera to the title card and adjust the focus.**
To focus the title, use the close-up function. (See page 28.)

2 **Press MEMORY to store the title.**
The title is displayed in the viewfinder.

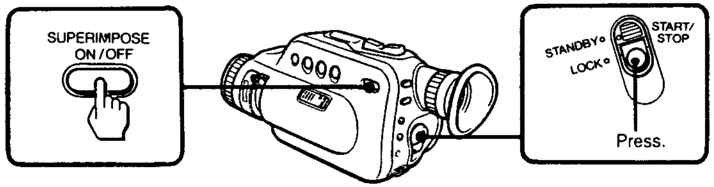
3 **Press COLOUR/MODE to select the title colour.**

4 **Press SUPERIMPOSE to turn off the title.**
The title is stored in memory until you change it.

To check the stored title
Press SUPERIMPOSE. To turn off the title, press the button again.

To change the title
Repeat the above procedure from step 1 with a new title.

Recording the Title



To record the title at the beginning	To record a title during camera recording
1 **Connect video equipment and set it to recording pause mode.**	1 **Press SUPERIMPOSE at the point from which you want to insert the title.** The title is displayed.
2 **Press SUPERIMPOSE.** The title is displayed in the viewfinder.	
3 **Start recording.**	2 **Wait for a while and press SUPERIMPOSE.** The title goes off.
4 **Wait for a while and press SUPERIMPOSE again.** The title goes off.	
To insert the title without the picture in the background Point the camera to a white, flat subject such as a white wall, paper, etc.	**To record the same title several times** Repeat the above procedure.

Notes on title colour

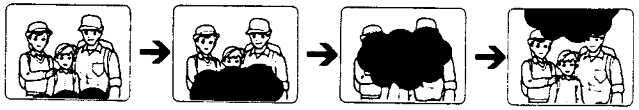
- You can change the title colour even after displaying the title in the above procedure.
- The colour indication in the viewfinder is not recorded.

Various Title Display Modes

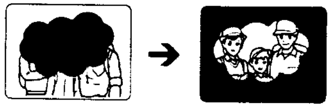
You can record the title in various display modes, as in the chart below.
To select the mode, press COLOUR/MODE until the desired mode indication appears while the title is not displayed in the viewfinder.
Each time you press the button, the indication of the mode changes in the viewfinder, as follows.

↑ (Title scroll mode) → T (Title reverse mode) ─┐
└ No indication (No title mode) ← T ↑ (Title reverse and scroll mode) ←┘

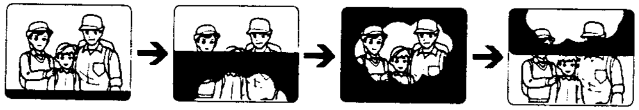
- **Title scroll mode (↑)**
  The title scrolls up from the bottom.



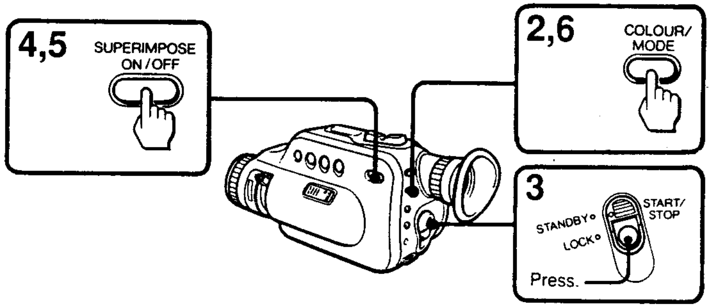
- **Title reverse mode (T)**
  The colour scheme of the title and the background picture can be reversed.



- **Title reverse and scroll mode (T ↑)**
  Reversed title scrolls up from the bottom.



Recording the Title in the Selected Display Mode



1 **Set the connected video equipment to recording pause mode.**

2 **Press COLOUR/MODE repeatedly until the desired mode indication (↑, T or T ↑) appears.**

3 **Start recording.**

4 **Press SUPERIMPOSE at the point from which you want to insert the title.**
The title is displayed.

5 **Wait for a while and press SUPERIMPOSE.**
The title goes off.

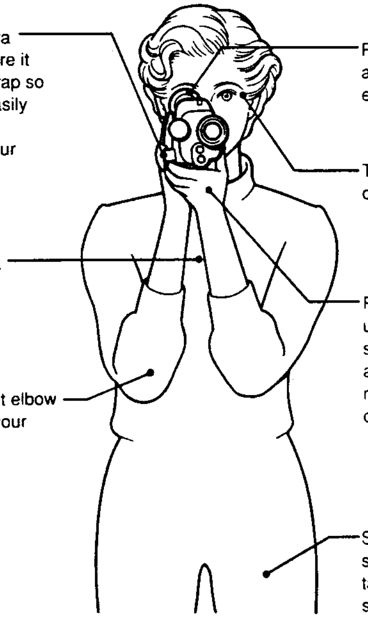
6 **Press COLOUR/MODE repeatedly until the indication disappears.**

Hints for Better Shooting

Getting Stable Pictures

Take a good posture for shooting

For hand-held shots, it is important to hold the camera properly.


Hold the camera firmly and secure it with the grip strap so that you can easily manipulate the camera with your thumb.
Place your eye firmly against the viewfinder eyecup.
Try to keep both eyes open.
Breathe gently.
Place your left hand under the camera to support it. When adjusting the focus manually, make sure the camera does not move.
Place your right elbow firmly against your side.
Stand opposite to the subject and let your feet take a comfortable stance.

Use a tripod or monopod if possible

If you have a tripod for a still camera, it can also be used with the video camera.
If a tripod is not available, try placing the camera on a tabletop, wall, or any other flat surface of suitable height.

Keep the horizontal plane level

The horizontal plane can be easily determined by using the viewfinder frame as a reference.

Lighting

Shoot with the sun behind you

When the light source is behind the subject, or in the following situations, the subject will be recorded too dark and the background too light.

- The subject is indoors and there is a window behind the subject.
- Bright sources such as fluorescent or incandescent lamps are included in the scene.
- You are shooting a person wearing white or shiny clothes in front of a white background. In this case, the face will be recorded too dark.

Use video lights in the dark

To get the best colours, a sufficient light level must be maintained.
Photography lamps or halogen lamps are recommended. For best results; use of Sony video lights is recommended since their weight and low heat output levels allow safe, direct connection to the camera.
When using the video light, attach it to the camera with the Sony VCT-55L shoe adaptor.
Do not point the light at the camera. The high heat from the light can warp the casing of the camera.
For detailed instructions on proper use of the light, read its instruction manual.

Brightness levels

Using the following chart as a reference, take a few minutes to familiarize yourself with brightness levels to improve your recording technique.

Snow-covered mountains Snow fields Sandy beach, clear day in summer	Unit: lux	ND filter recommended
Clear day, mid-day (100.000 lux.) Clear day, mid-afternoon (35.000) Overcast day, mid-day (32,000)	100.000	Normal recording
	10,000	
Overcast day, one hour after sunrise (2,000)		
Office lit by fluorescent lamps, near window (1,000) Clear day, one hour before sunset (1,000) Department store counter (500 – 700)	1,000	
Station wicket (650) Office lit by fluorescent lamps (400 – 500)	500	
Room lit by two 30 W fluorescent lamps (300) Subway station platform (300)	300	Video light recommended
Arcade at night (150 – 200)	100	
Theater lobby (15 – 35) Candlelight (10 – 15) ( ): lux	10	

Precautions

- Should any solid object or liquid fall into the cabinet, unplug the video camera and have it checked by qualified personnel before operating it any further.
- Do not wrap up the unit and operate it because heat may build up internally.
- Avoid rough handling or mechanical shock to the unit.
- Do not apply excessive force to the microphone.
- Do not hold the unit by the viewfinder.
- Do not point the camera directly at the sun.
- Avoid using and storing the unit in the following locations:
  - — Inside a car with doors and windows closed
  - — Locations susceptible to vibration
  - — Locations exposed to strong magnetic fields
  - — Locations exposed to high humidity
  - — Locations near AM radio or tuner (Sound may be affected.)
- If the unit is used at the beach, take special care to keep the unit from being exposed to salt water. Otherwise, the unit may be damaged beyond repair.
- Avoid shooting the same object for a long period of time as this will damage the colour filter inside the camera and may cause a poor picture quality.
- When the unit is not in use, cover the lens with the lens cap.

Moisture condensation on the lens

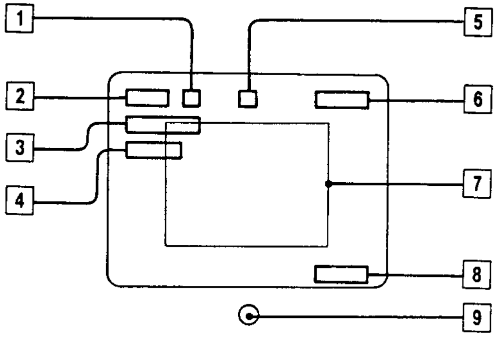
If the unit is brought directly from a cold to a warm location, moisture may condense on the lens and it becomes dim. If this occurs, turn off the connected video equipment and leave the video camera unused at least for one hour.

Use of an external microphone

When a stereo microphone with a stereo miniplug is connected to the MIC jack of this video camera and the camera is connected to stereo video equipment, you can make a stereo recording. However, if the connected microphone is monaural and the connected video equipment is stereo, only the sound on the left channel will be recorded. To avoid this, use Sony PC-251MS plug adaptor (stereo miniplug to minijack).

Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws.

Indications inside the Viewfinder



1 ⊡ (Back light)
Appears while the back light function is being adjusted.

2 Manual white balance mode
HOLD, ☀ (outdoors), ☼ (indoors)

3 Title, mode and colour

4 Shutter speed

5 ■ (Focusing)
Lights while manual focusing.
Blinks when auto focus function does not operate correctly.

6 REC (recording)
Appears during recording.

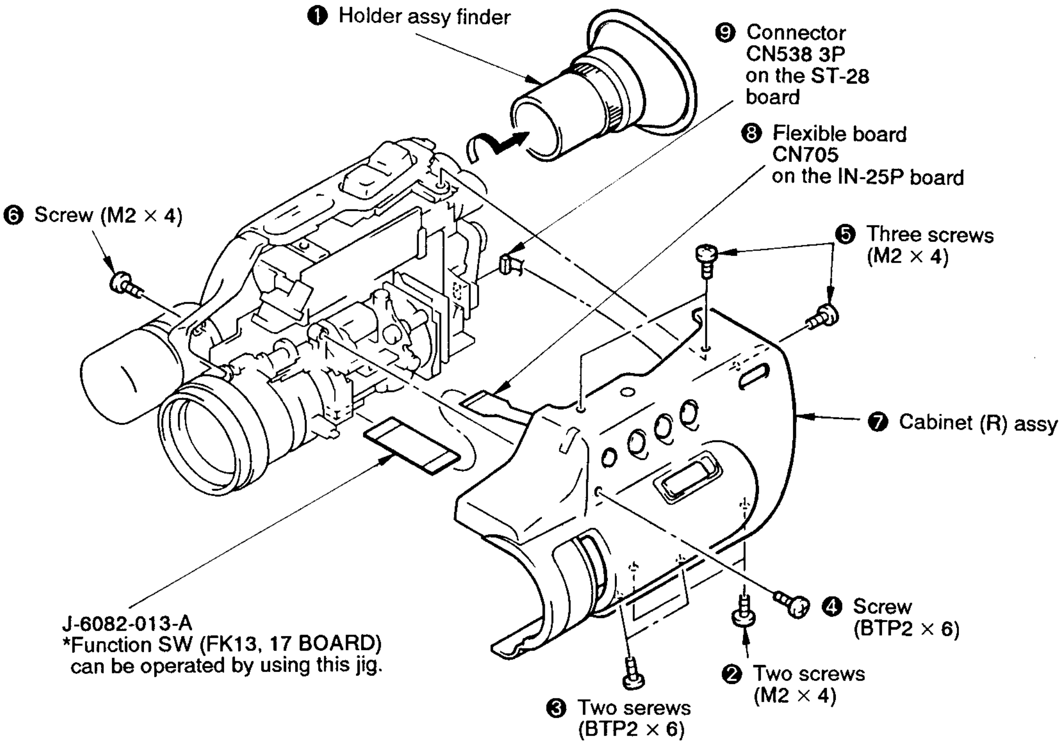
7 Auto focus frame
Appears during auto focus recording.
Focus is achieved within this frame.

8 Date or time

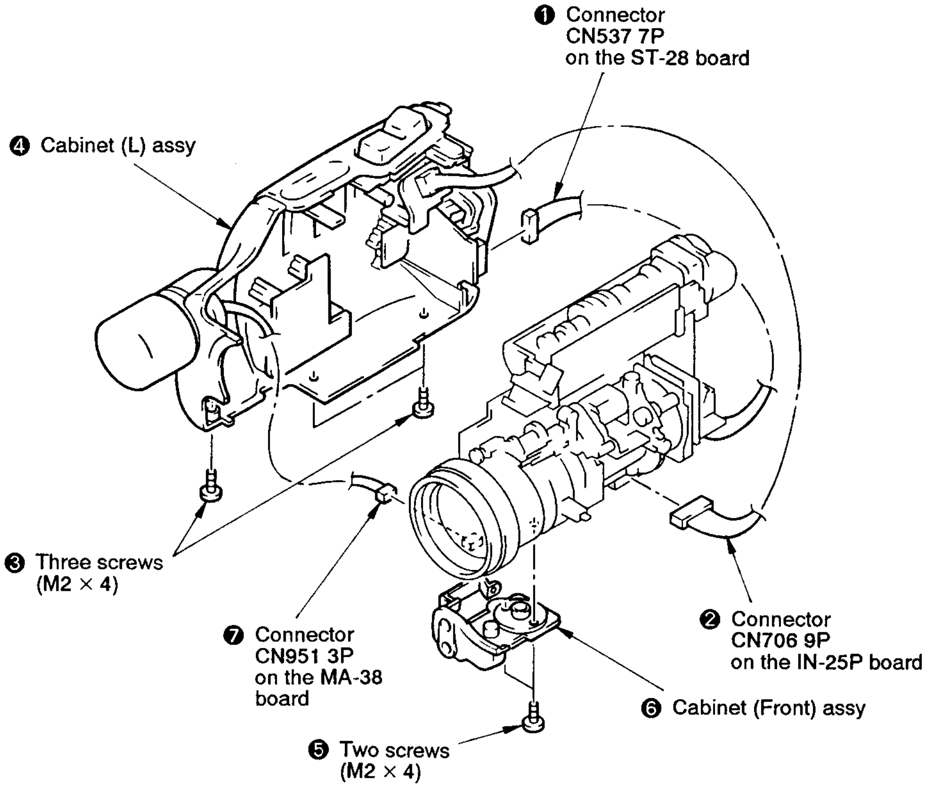
9 Tally lamp
Lights during recording.
Blinks when the battery of the connected video equipment has been exhausted or the tape has reached its end.

SECTION 2
DISASSEMBLY

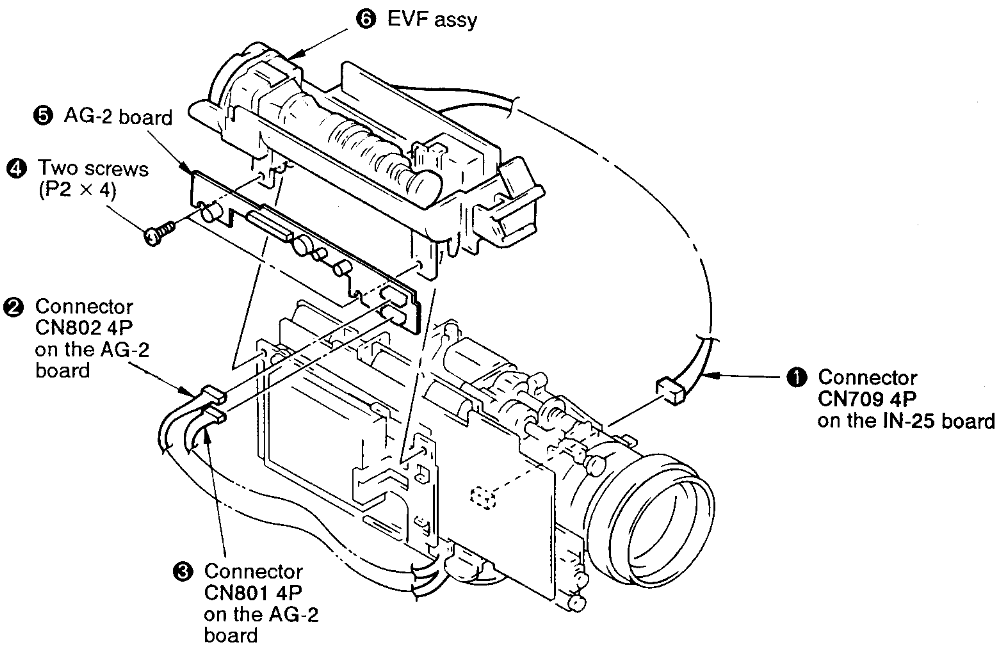
2-1. REMOVAL OF CABINET (R) ASSEMBLY


❶ Holder assy finder
❾ Connector
CN538 3P
on the ST-28
board
❽ Flexible board
CN705
on the IN-25P board
❻ Screw (M2 × 4)
❺ Three screws
(M2 × 4)
❼ Cabinet (R) assy
J-6082-013-A
*Function SW (FK13, 17 BOARD)
can be operated by using this jig.
❹ Screw
(BTP2 × 6)
❷ Two screws
(M2 × 4)
❸ Two serews
(BTP2 × 6)

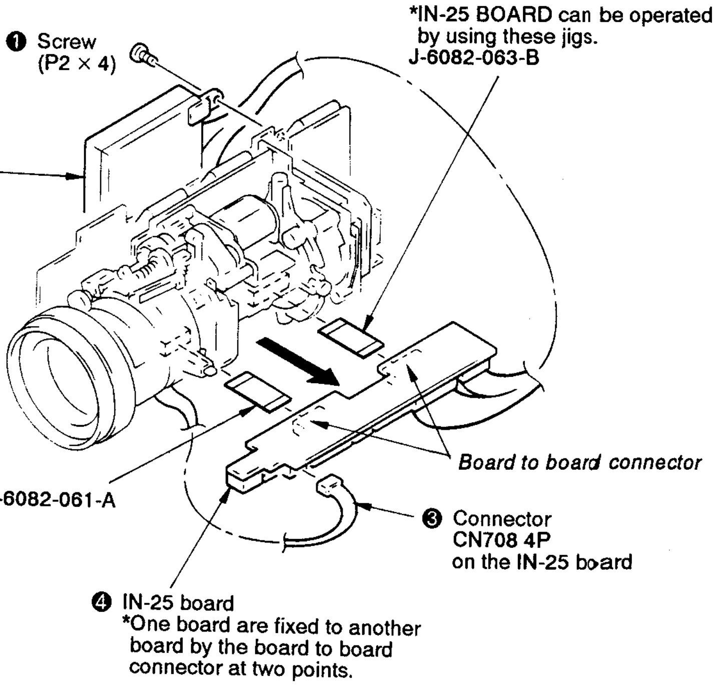
2-2. REMOVAL OF CABINET (L) ASSEMBLY


❶ Connector
CN537 7P
on the ST-28 board
❹ Cabinet (L) assy
❸ Three screws
(M2 × 4)
❼ Connector
CN951 3P
on the MA-38
board
❷ Connector
CN706 9P
on the IN-25P board
❻ Cabinet (Front) assy
❺ Two screws
(M2 × 4)

2-3. REMOVAL OF EVF ASSEMBLY


❻ EVF assy
❺ AG-2 board
❹ Two screws (P2 × 4)
❷ Connector CN802 4P on the AG-2 board
❶ Connector CN709 4P on the IN-25 board
❸ Connector CN801 4P on the AG-2 board

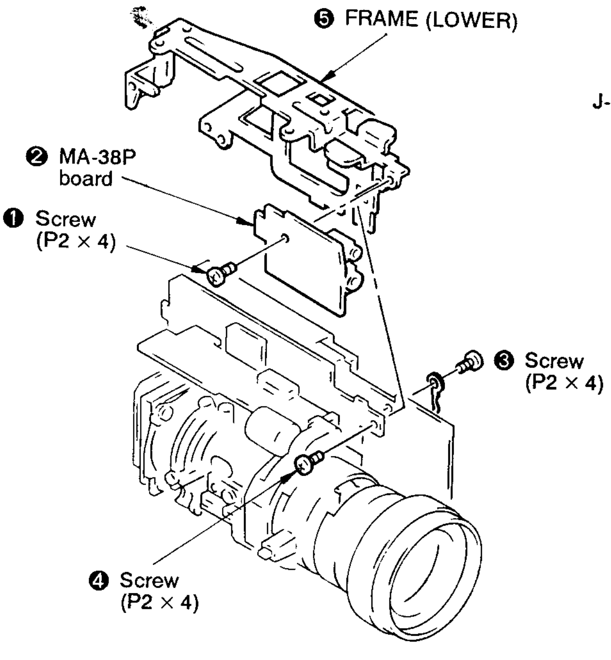
2-4. REMOVAL OF TRANSFORMER UNIT AND IN-25 BOARD


❶ Screw (P2 × 4)
❷ Transformer unit
J-6082-063-B
J-6082-061-A
Board to board connector
❸ Connector CN708 4P on the IN-25 board
❹ IN-25 board

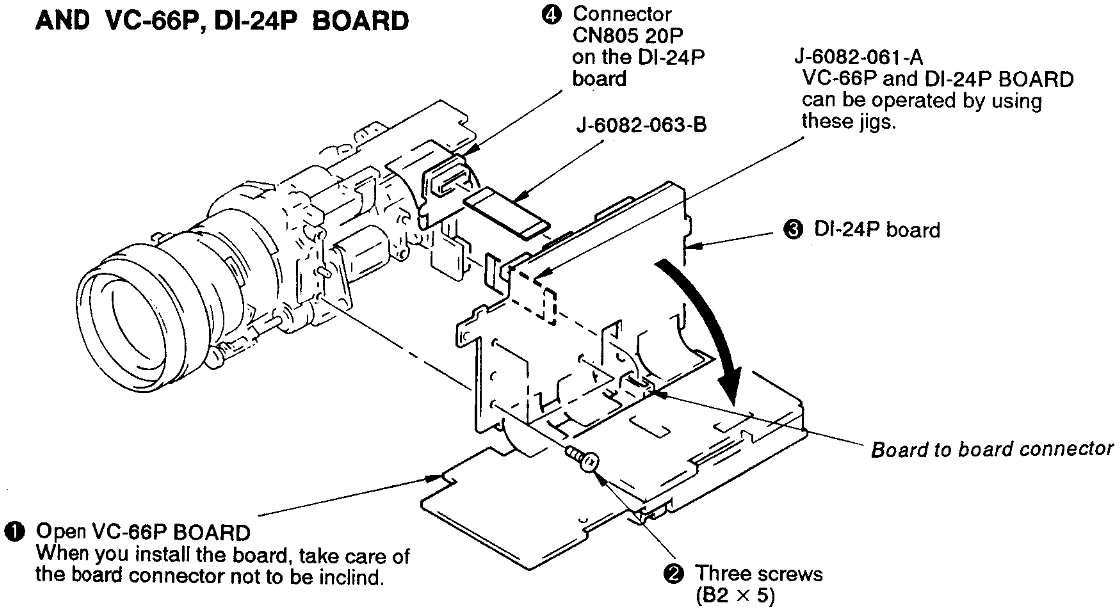
*IN-25 BOARD can be operated by using these jigs.

*One board are fixed to another board by the board to board connector at two points.

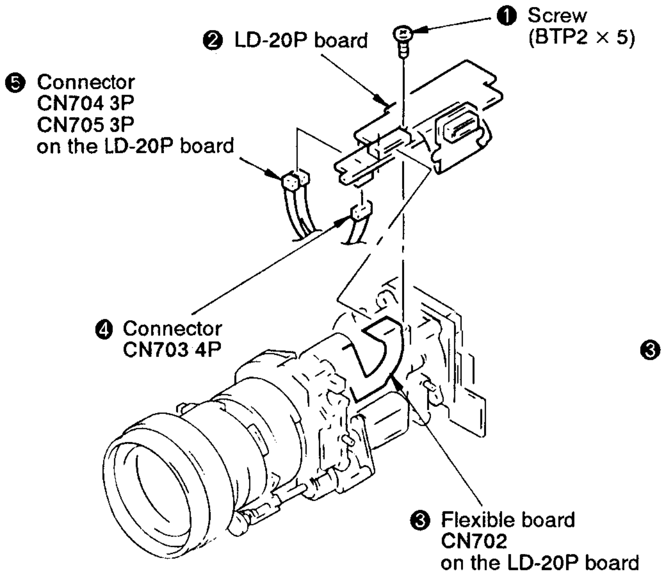
2-5. REMOVAL OF MA-38P BOARD AND FRAME (LOWER)


❺ FRAME (LOWER)
❷ MA-38P board
❶ Screw (P2 × 4)
❸ Screw (P2 × 4)
❹ Screw (P2 × 4)

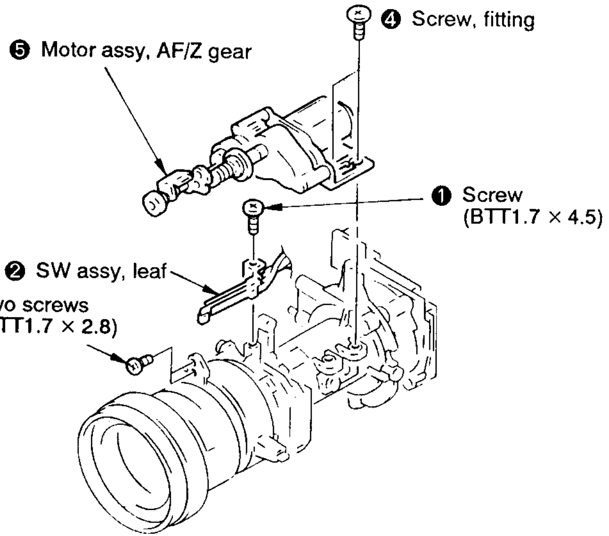
2-6. REMOVAL OF LENS ASSEMBLY AND VC-66P, DI-24P BOARD


❹ Connector
CN805 20P
on the DI-24P
board
J-6082-061-A
VC-66P and DI-24P BOARD
can be operated by using
these jigs.
J-6082-063-B
❸ DI-24P board
Board to board connector
❶ Open VC-66P BOARD
When you install the board, take care of
the board connector not to be inclind.
❷ Three screws
(B2 × 5)

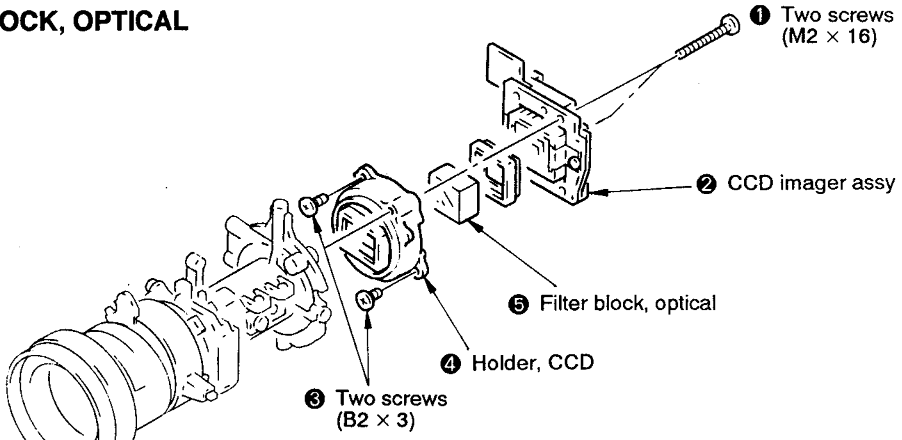
2-7. REMOVAL OF LD-20P BOARD


❶ Screw
(BTP2 × 5)
❷ LD-20P board
❺ Connector
CN704 3P
CN705 3P
on the LD-20P board
❹ Connector
CN703 4P
❸ Flexible board
CN702
on the LD-20P board

2-8. REMOVAL OF MOTOR ASSEMBLY, AF/Z GEAR


❹ Screw, fitting
❺ Motor assy, AF/Z gear
❶ Screw
(BTT1.7 × 4.5)
❷ SW assy, leaf
❸ Two screws
(BTT1.7 × 2.8)

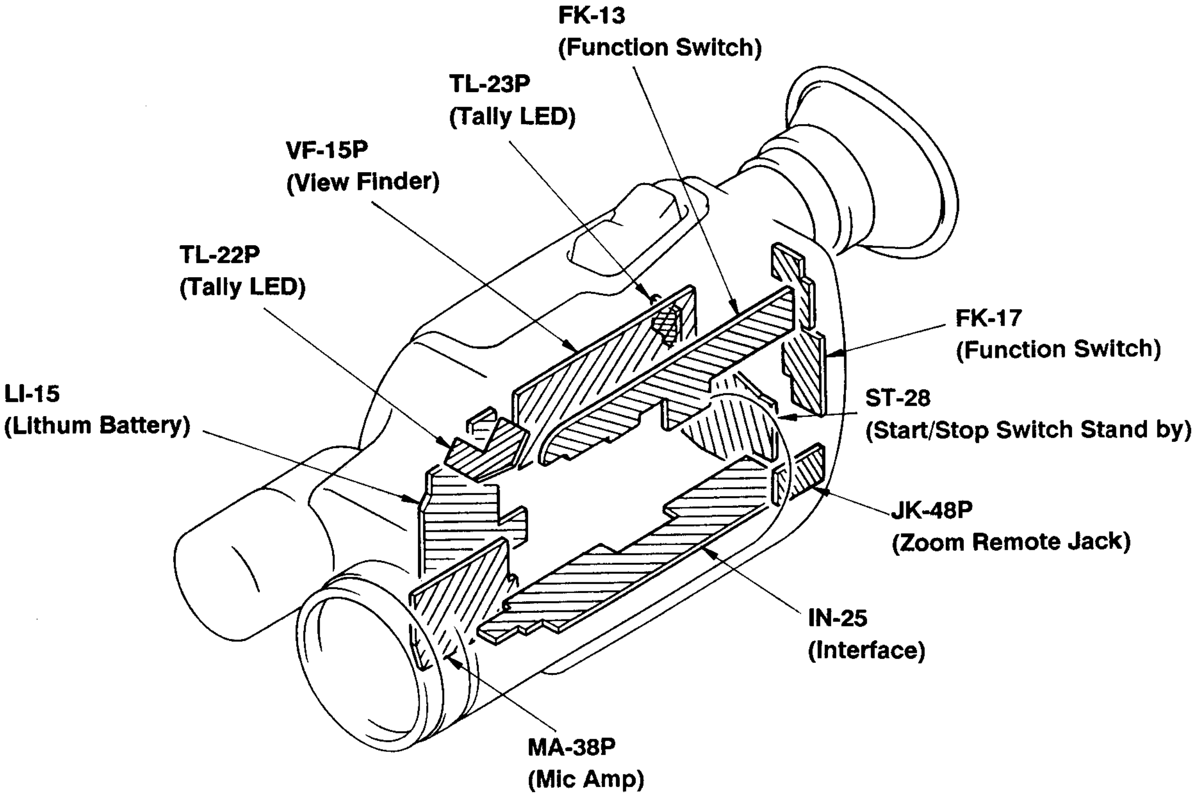
2-9. REMOVAL OF CCD ASSEMBLY AND FILTER BLOCK, OPTICAL


❶ Two screws
(M2 × 16)
❷ CCD imager assy
❺ Filter block, optical
❹ Holder, CCD
❸ Two screws
(B2 × 3)

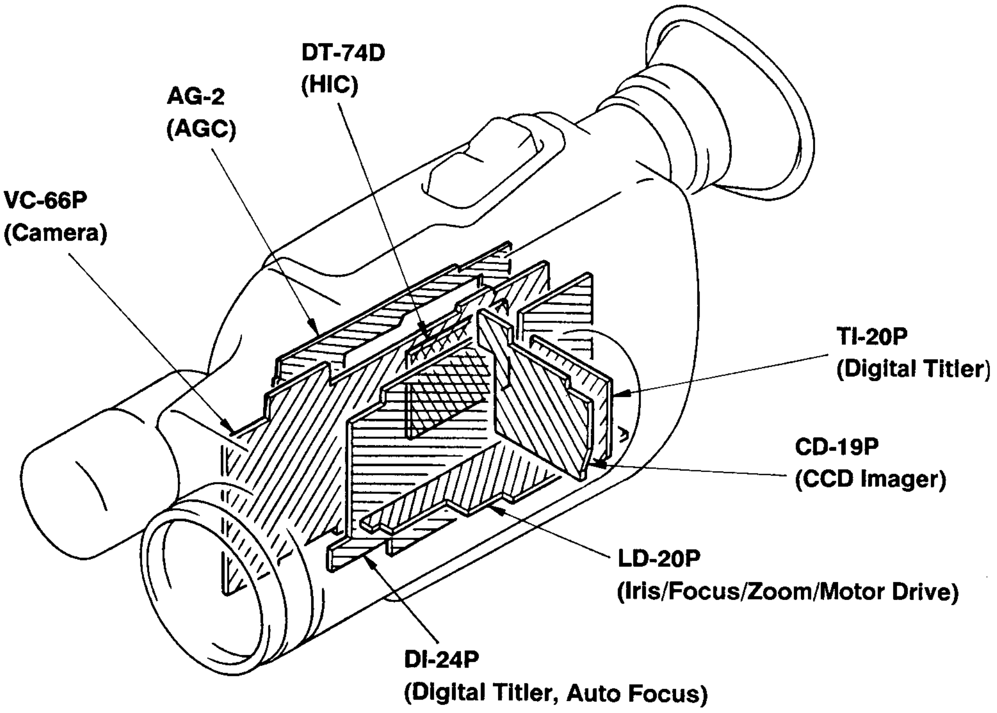
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARD LOCATION

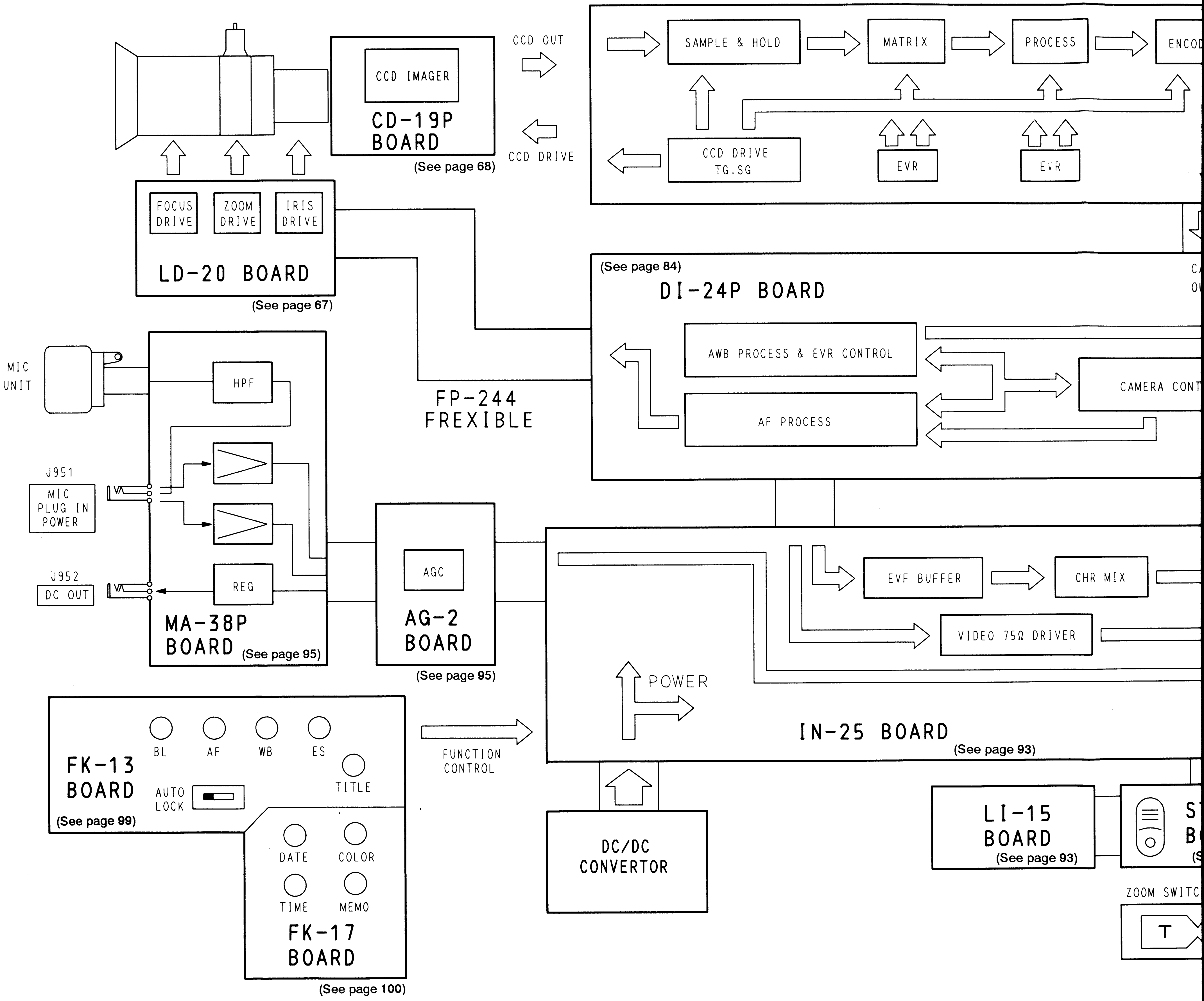
CIRCUIT BOARD LOCATION (1)

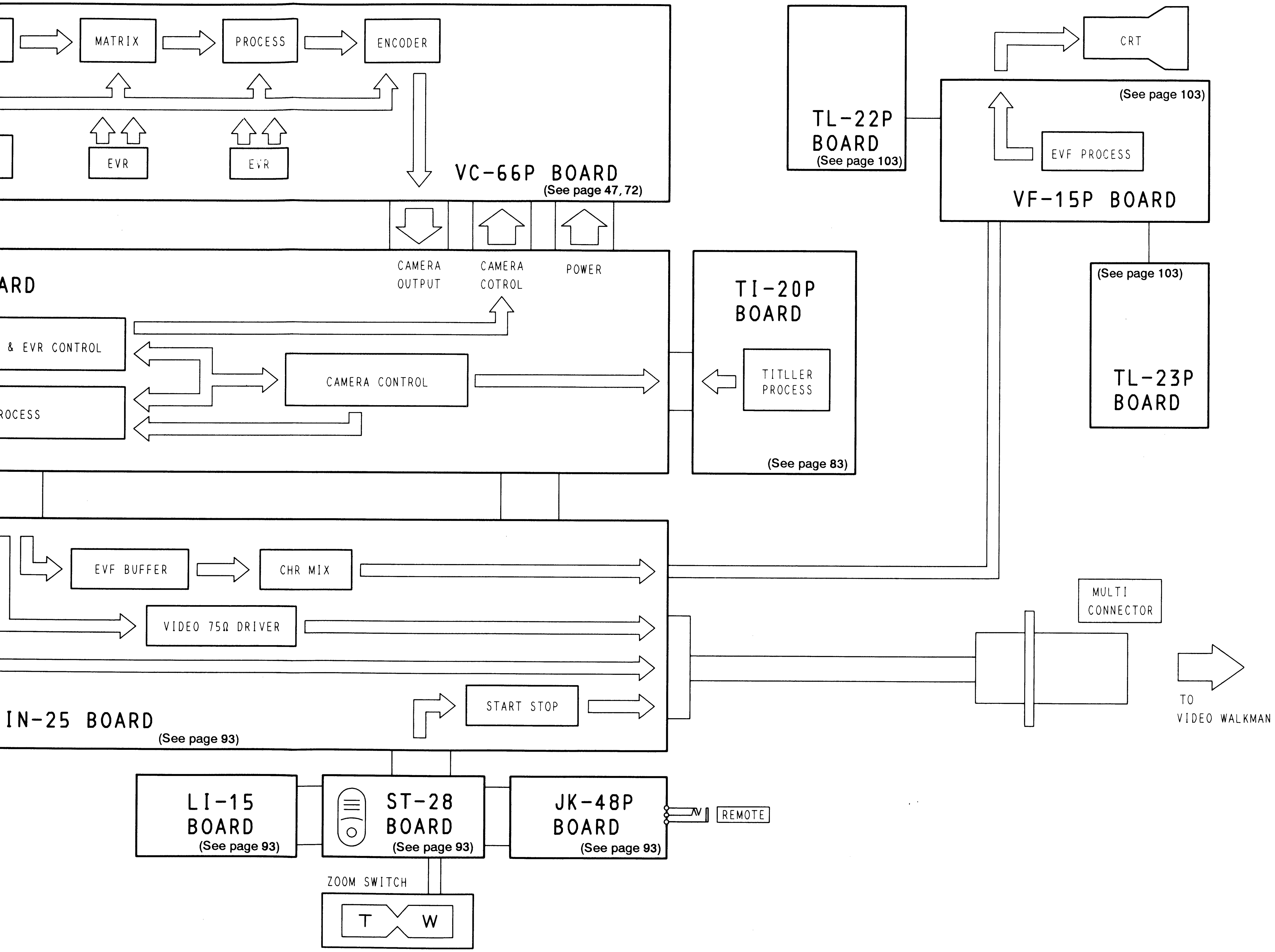

FK-13
(Function Switch)
TL-23P
(Tally LED)
VF-15P
(View Finder)
TL-22P
(Tally LED)
LI-15
(Lithum Battery)
FK-17
(Function Switch)
ST-28
(Start/Stop Switch Stand by)
JK-48P
(Zoom Remote Jack)
IN-25
(Interface)
MA-38P
(Mic Amp)

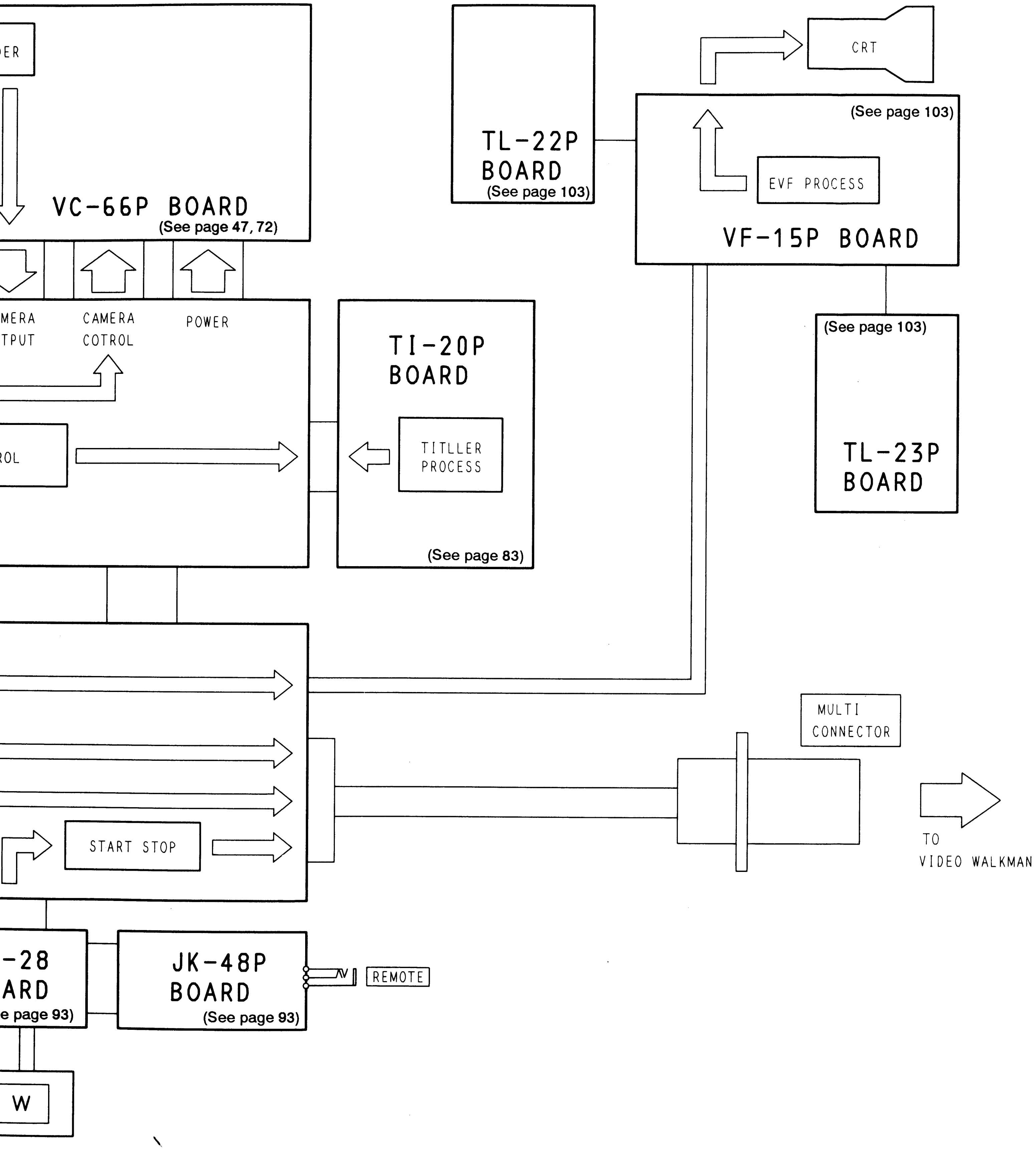
CIRCUIT BOARD LOCATION (2)


DT-74D
(HIC)
AG-2
(AGC)
VC-66P
(Camera)
TI-20P
(Digital Titler)
CD-19P
(CCD Imager)
LD-20P
(Iris/Focus/Zoom/Motor Drive)
DI-24P
(Digital Titler, Auto Focus)

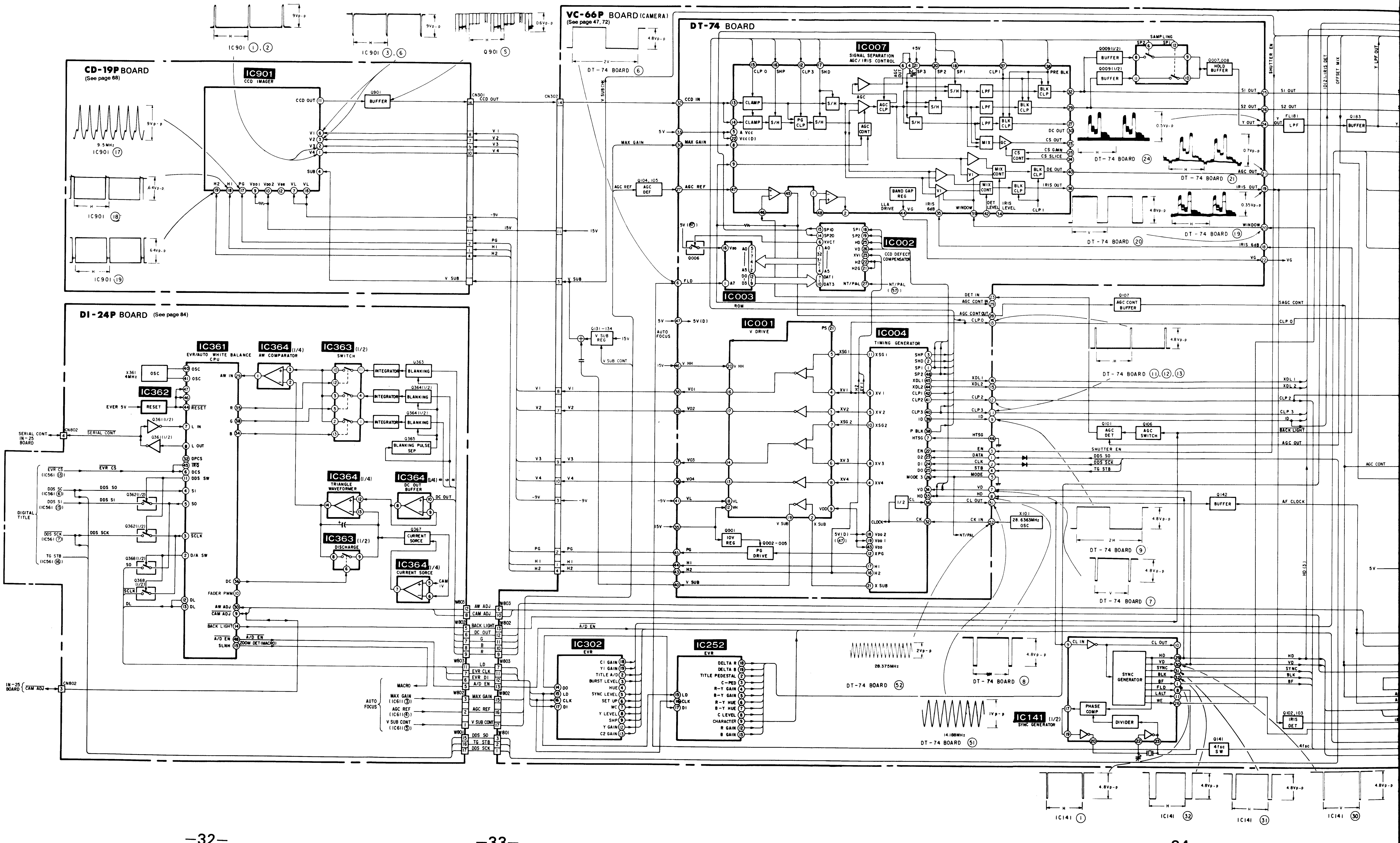
3-2. OVERALL BLOCK DIAGRAM

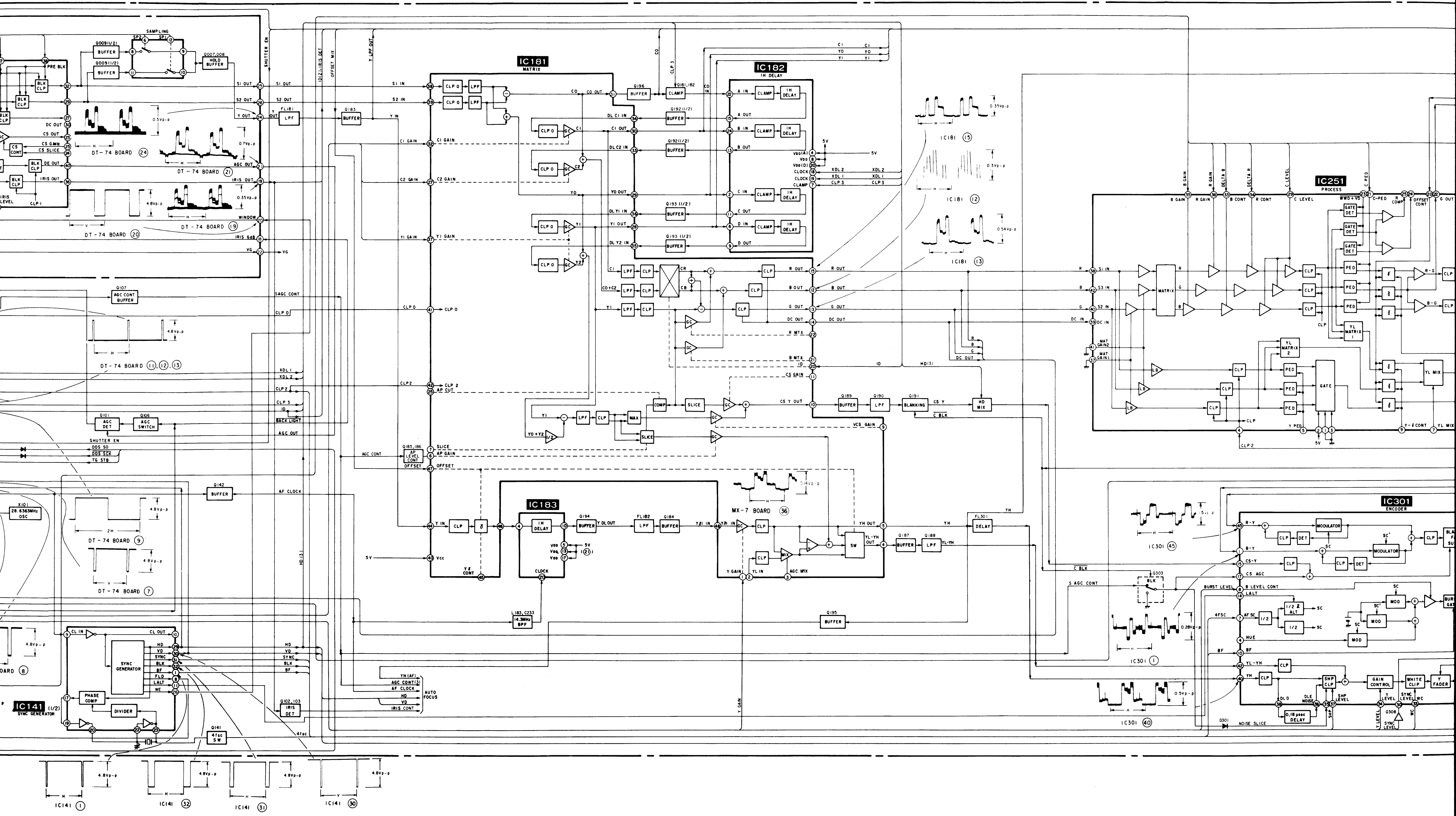

CCD IMAGER
CD-19P BOARD
(See page 68)
CCD OUT
CCD DRIVE
SAMPLE & HOLD
MATRIX
PROCESS
ENCOD
CCD DRIVE TG.SG
EVR
EVR
FOCUS DRIVE
ZOOM DRIVE
IRIS DRIVE
LD-20 BOARD
(See page 67)
(See page 84)
DI-24P BOARD
C
O
AWB PROCESS & EVR CONTROL
AF PROCESS
CAMERA CONT
MIC UNIT
HPF
FP-244 FREXIBLE
J951
MIC PLUG IN POWER
J952
DC OUT
REG
MA-38P BOARD (See page 95)
AGC
AG-2 BOARD
(See page 95)
EVF BUFFER
CHR MIX
VIDEO 75Ω DRIVER
POWER
IN-25 BOARD
(See page 93)
BL
AF
WB
ES
TITLE
FK-13 BOARD
(See page 99)
AUTO LOCK
DATE
COLOR
TIME
MEMO
FK-17 BOARD
(See page 100)
FUNCTION CONTROL
DC/DC CONVERTOR
LI-15 BOARD
(See page 93)
S
B
(S
ZOOM SWITC
T

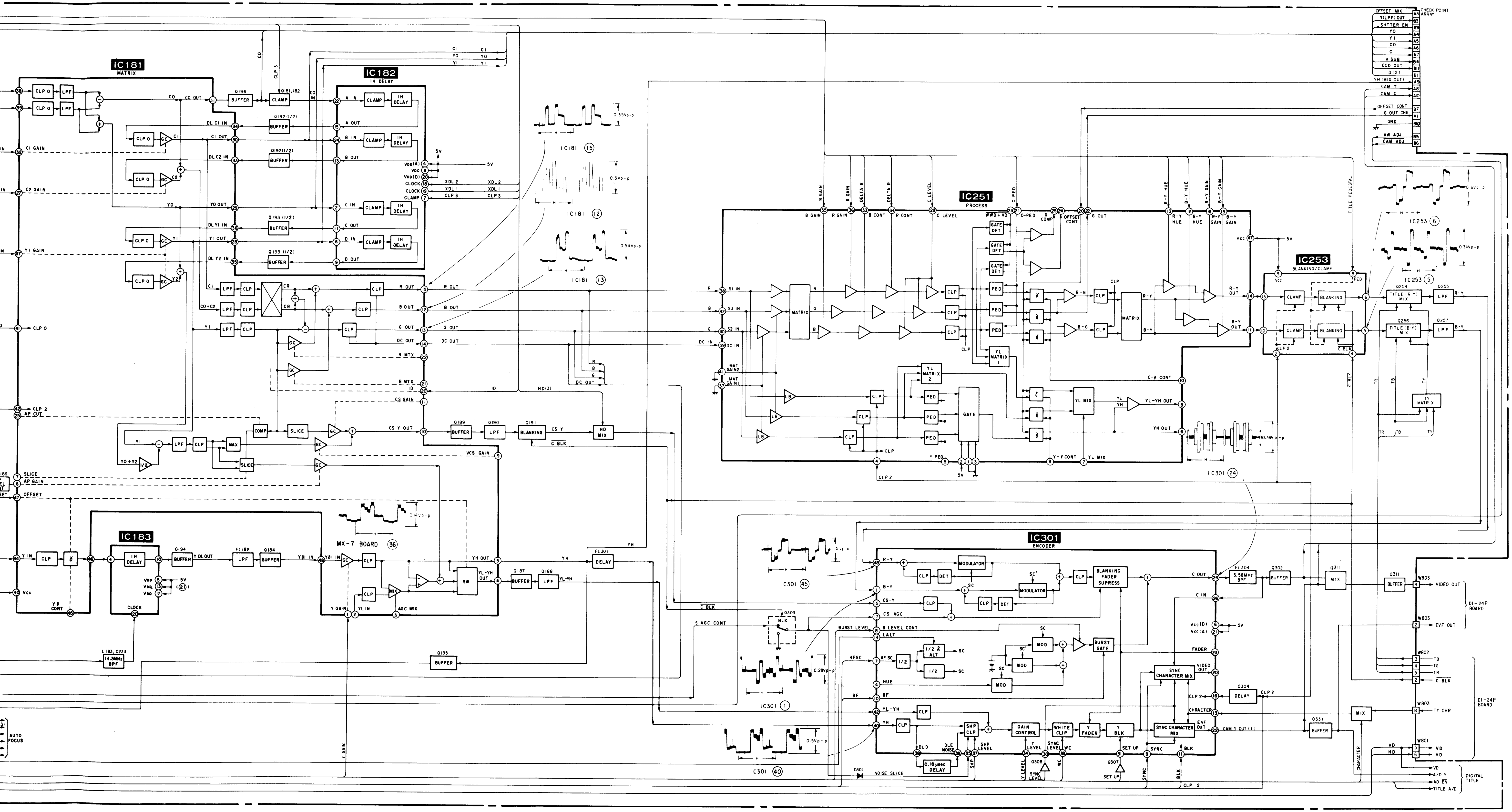

MATRIX
PROCESS
ENCODER
EVR
EVR
VC-66P BOARD
(See page 47, 72)
TL-22P
BOARD
(See page 103)
CRT
(See page 103)
EVF PROCESS
VF-15P BOARD
CAMERA
OUTPUT
CAMERA
COTROL
POWER
ARD
& EVR CONTROL
CAMERA CONTROL
ROCESS
TI-20P
BOARD
TITLLER
PROCESS
(See page 83)
(See page 103)
TL-23P
BOARD
EVF BUFFER
CHR MIX
VIDEO 75Ω DRIVER
MULTI
CONNECTOR
TO
VIDEO WALKMAN
START STOP
IN-25 BOARD
(See page 93)
LI-15
BOARD
(See page 93)
ST-28
BOARD
(See page 93)
JK-48P
BOARD
(See page 93)
REMOTE
ZOOM SWITCH
T
W


ER
VC-66P BOARD
(See page 47, 72)
MERA
TPUT
CAMERA
COTROL
POWER
OL
TI-20P
BOARD
TITLLER
PROCESS
(See page 83)
TL-22P
BOARD
(See page 103)
CRT
(See page 103)
EVF PROCESS
VF-15P BOARD
(See page 103)
TL-23P
BOARD
START STOP
MULTI
CONNECTOR
TO
VIDEO WALKMAN
-28
ARD
e page 93)
JK-48P
BOARD
(See page 93)
REMOTE
W

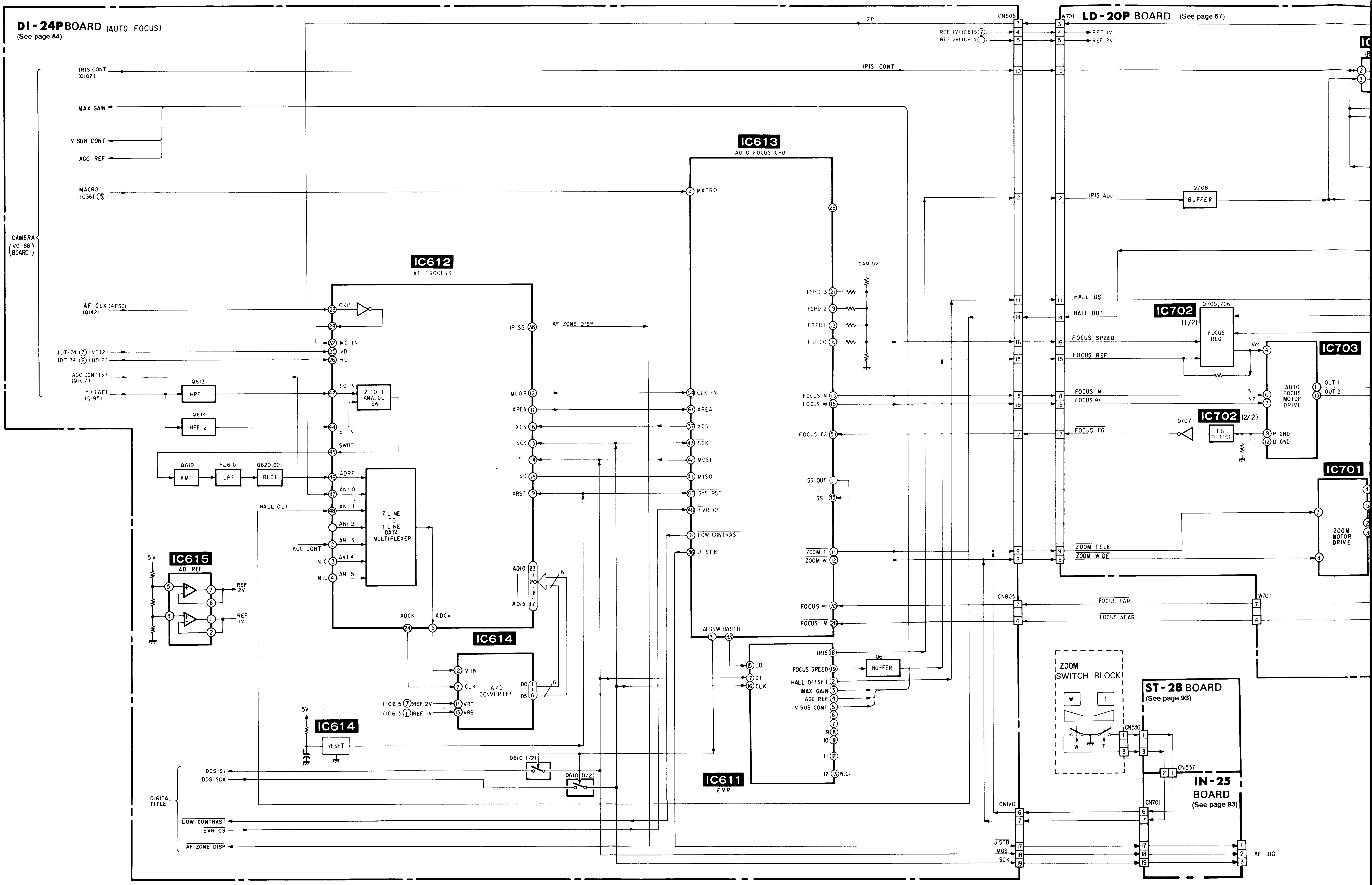
3-3. CAMERA BLOCK DIAGRAM

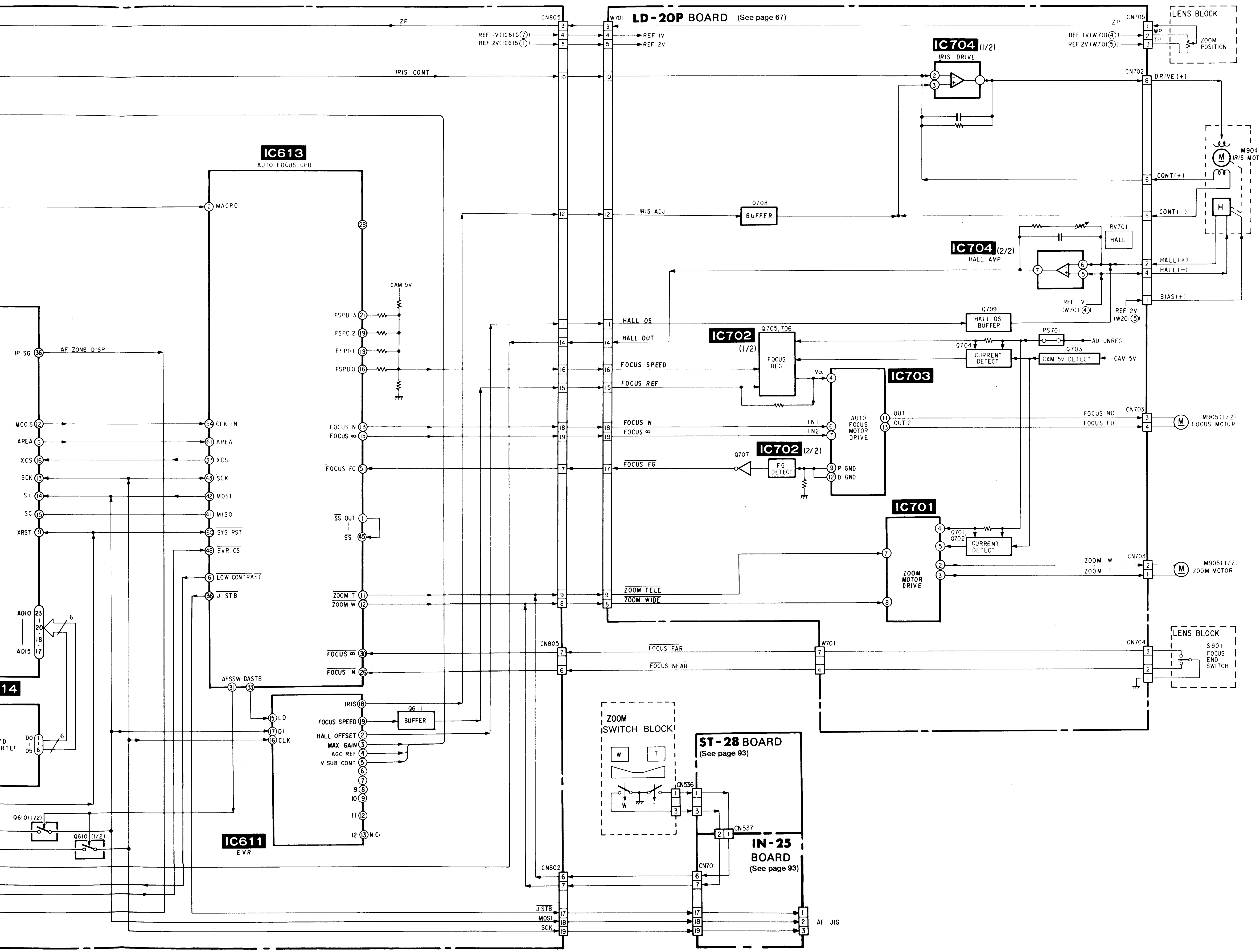

CD-19P BOARD
(See page 68)
IC901
CCD IMAGER
Q901
BUFFER
IC901 ①, ②
IC901 ③, ⑥
Q901 ⑤
IC901 ⑰
IC901 ⑱
IC901 ⑲
9.5MHz
VC-66P BOARD (CAMERA)
(See page 47, 72)
DT-74 BOARD
DT-74 BOARD ⑥
IC007
SIGNAL SEPARATION AGC/IRIS CONTROL
IC002
CCD DEFECT COMPENSATOR
IC003
ROM
IC001
V DRIVE
IC004
TIMING GENERATOR
Q006
Q001
10V REG
Q002-005
PG DRIVE
Q131-134
V SUB REG
Q104, 105
AGC DEF
BAND GAP REG
SAMPLING
Q009(1/2)
BUFFER
Q007, 008
HOLD BUFFER
FL181
LPF
Q183
BUFFER
Q107
AGC CONT BUFFER
Q101
AGC DET
Q106
AGC SWITCH
Q142
BUFFER
X101
28.6363MHz
OSC
IC141 (1/2)
SYNC GENERATOR
SYNC GENERATOR
PHASE COMP
DIVIDER
Q141
4fsc SW
Q102, 103
IRIS DET
DT-74 BOARD ㉔
DT-74 BOARD ㉑
DT-74 BOARD ⑲
DT-74 BOARD ⑳
DT-74 BOARD ⑪, ⑫, ⑬
DT-74 BOARD ⑨
DT-74 BOARD ⑦
DT-74 BOARD ⑧
DT-74 BOARD (52)
DT-74 BOARD (51)
28.375MHz
14.188MHz
IC141 ①
IC141 ㉜
IC141 ㉛
IC141 ㉚
DI-24P BOARD (See page 84)
IC361
EVR/AUTO WHITE BALANCE CPU
IC362
RESET
IC364 (1/4)
AW COMPARATOR
IC363 (1/2)
SWITCH
INTEGRATOR
BLANKING
Q363
Q364(1/2)
Q365
BLANKING PULSE SEP
IC364 (1/4)
TRIANGLE WAVEFORMER
IC364 (1/4)
DC OUT BUFFER
IC363 (1/2)
DISCHARGE
Q367
CURRENT SORCE
IC364 (1/4)
CURRENT SORCE
X361
4MHz
OSC
Q361(1/2)
Q362(1/2)
Q368(1/2)
SERIAL CONT IN-25 BOARD
DIGITAL TITLE
IN-25 BOARD
CAM ADJ
AUTO FOCUS
MACRO
MAX GAIN
AGC REF
V SUB CONT
IC302
EVR
IC252
EVR
SHUTTER EN
OFFSET MIX
Y LPF OUT
SI OUT
S2 OUT
AGC CONT
CLP 0
XDL 1
XDL 2
CLP 2
CLP 3
BACK LIGHT
AGC OUT
AF CLOCK
HD
VD
SYNC
BLK
BF
4fsc


IC181
MATRIX
IC182
1H DELAY
IC183
IC251
PROCESS
IC301
ENCODER
IC141 (1/2)
SYNC GENERATOR
SAMPLING
SP2
SP1
Q009(1/2)
BUFFER
Q007,008
HOLD BUFFER
PRE BLK
BLK CLP
DC OUT
CS OUT
CS GAIN
CS SLICE
CS CONT
DE OUT
IRIS OUT
IRIS LEVEL
CLP 1
SHUTTER EN
S1 OUT
S2 OUT
Y OUT
AGC OUT
WINDOW
IRIS 6dB
VG
FL181
LPF
Q183
BUFFER
(D12) IRIS DET
OFFSET MIX
Y LPF OUT
DT-74 BOARD ㉔
DT-74 BOARD ㉑
DT-74 BOARD ⑳
DT-74 BOARD ⑲
DT-74 BOARD ⑪, ⑫, ⑬
DT-74 BOARD ⑨
DT-74 BOARD ⑦
BOARD ⑧
0.5Vp-p
0.7Vp-p
0.35Vp-p
4.8Vp-p
Q107
AGC CONT BUFFER
SAGC CONT
CLP 0
XDL 1
XDL 2
CLP 2
CLP 3
ID
BACK LIGHT
AGC OUT
Q101
AGC DET
Q106
AGC SWITCH
SHUTTER EN
DDS SO
DDS SCK
TG STB
X101
28.6363MHz OSC
Q142
BUFFER
AF CLOCK
HD (3)
CL IN
CL OUT
SYNC GENERATOR
HD
VD
SYNC
BLK
BF
FLD
LALT
WE
PHASE COMP
DIVIDER
Q141
4fsc SW
4fsc
YH (AF)
AGC CONT(3)
AF CLOCK
HD
VD
IRIS CONT
AUTO FOCUS
Q102,103
IRIS DET
IC141 ①
IC141 ㉜
IC141 ㉛
IC141 ㉚
S1 IN
S2 IN
CLP 0
LPF
CO
CO OUT
C1 GAIN
C2 GAIN
Y1 GAIN
GC
C1
C2
Y1
Y2
YO
DLC1 IN
C1 OUT
DLC2 IN
YO OUT
DLY1 IN
Y1 OUT
DLY2 IN
Q196
BUFFER
CLAMP
Q181,182
Q192(1/2)
Q192(1/2)
Q193(1/2)
CLP 3
CO IN
A IN
A OUT
B IN
B OUT
C IN
C OUT
D IN
D OUT
CLAMP
1H DELAY
5V
VDD(A)
VDD
VDD(D)
CLOCK
CLAMP
XDL 2
XDL 1
CLP 3
C1
YO
Y1
IC181 ⑮
IC181 ⑫
IC181 ⑬
0.35Vp-p
0.3Vp-p
0.54Vp-p
C1
C0+C2
Y1
LPF
CLP
CR
CB
R OUT
B OUT
G OUT
DC OUT
R MTX
B MTX
ID
CS GAIN
CS Y OUT
VCS GAIN
CLP2
CLP 2
AP CUT
Y1
Y0+Y2
1/2
MAX
COMP
SLICE
Q185,186
AP LEVEL CONT
AGC CONT
SLICE
AP GAIN
OFFSET
Q189
BUFFER
Q190
LPF
Q191
BLANKING
CS Y
C BLK
HD MIX
HD(3)
Y IN
CLP
γ
Y γ CONT
5V
Vcc
1H DELAY
Q194
BUFFER
Y DLOUT
FL182
Q184
YD1 IN
VDD
VDDA
5V
CLOCK
L183, C233
14.3MHz BPF
MX-7 BOARD ㊱
0.4Vp-p
Y GAIN
YL IN
AGC MIX
MIX
SW
YH OUT
YL-YH OUT
Q187
BUFFER
Q188
LPF
YL-YH
YH
FL301
DELAY
Q195
BUFFER
Y GAIN
B GAIN
R GAIN
DELTA B
DELTA R
C LEVEL
C PED
B CONT
R CONT
WWD+VD
R COMP
OFFSET CONT
G OUT
GATE DET
S1 IN
S3 IN
S2 IN
DC IN
MAT GAIN2
MAT GAIN1
MATRIX
PED
YL MATRIX 1
YL MATRIX 2
LB
GATE
YL MIX
R-G
B-G
Y PED
γ CONT
CLP 2
IC301 ㊺
IC301 ①
IC301 ㊵
1.5Vp-p
0.28Vp-p
0.5Vp-p
R-Y
B-Y
CS-Y
CS AGC
B LEVEL CONT
BURST LEVEL
LALT
AF SC
4FSC
HUE
BF
YL-YH
YH
MODULATOR
DET
SC
MOD
1/2 & ALT
1/2
S AGC CONT
Q303
BLK
C BLK
SHP CLP
GAIN CONTROL
WHITE CLIP
Y FADER
DLD
DLE NOISE
0.18μsec DELAY
SHP LEVEL
Y LEVEL
SYNC LEVEL
Q308
D301
NOISE SLICE
SHP

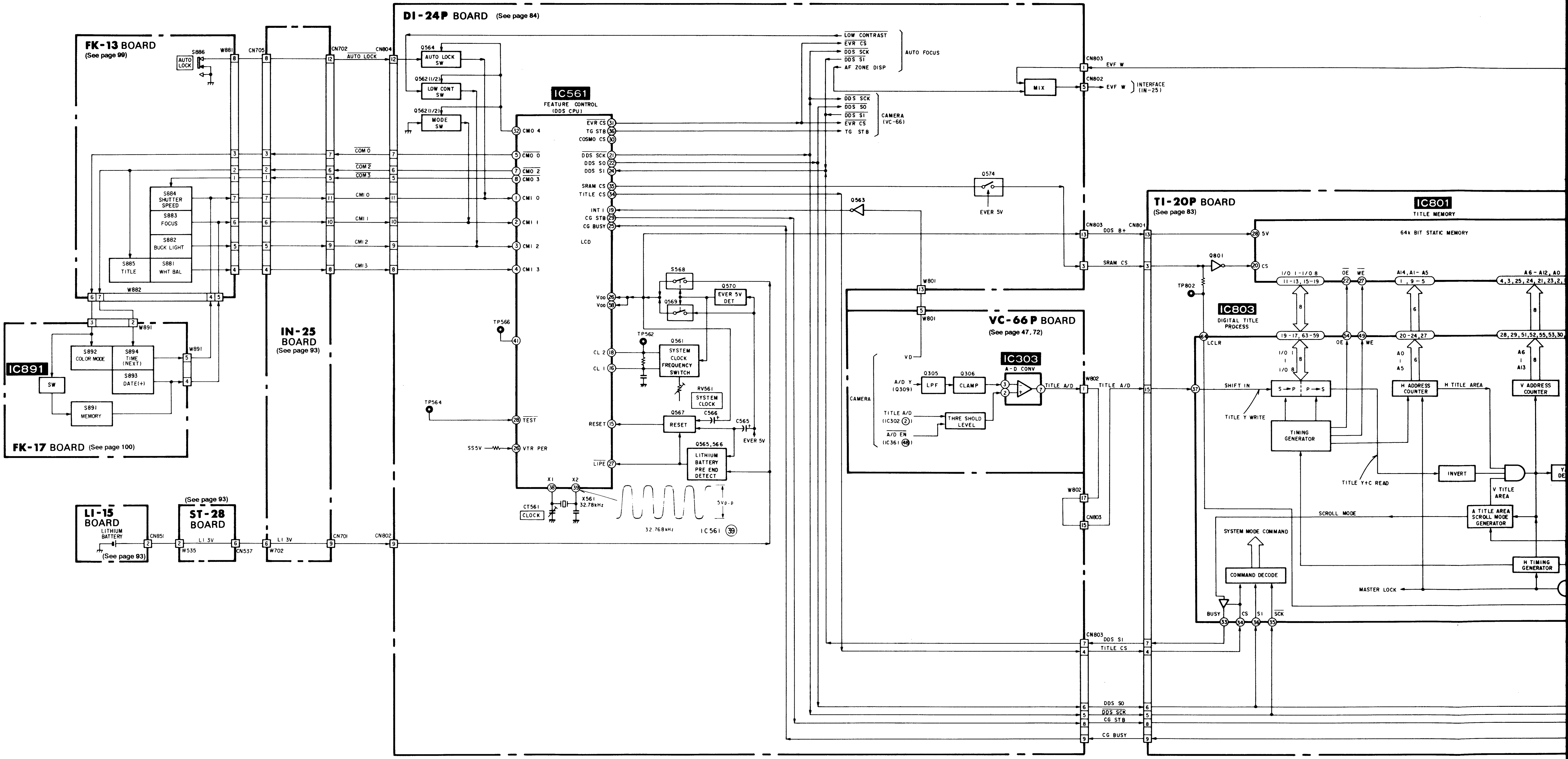

IC181
MATRIX
IC182
1H DELAY
IC183
IC251
PROCESS
IC253
BLANKING/CLAMP
IC301
ENCODER
CLP O
LPF
BUFFER
CLAMP
1H DELAY
GC
MATRIX
CO OUT
CI OUT
DL CI IN
DL C2 IN
YO OUT
DLY1 IN
Y1 OUT
DL Y2 IN
A IN
A OUT
B IN
B OUT
C IN
C OUT
D IN
D OUT
XDL 2
XDL 1
CLP 3
R OUT
B OUT
G OUT
DC OUT
R MTX
B MTX
ID
CS GAIN
CS Y OUT
VCS GAIN
COMP
SLICE
MAX
HD MIX
BLANKING
CS Y
C BLK
CI GAIN
C2 GAIN
Y1 GAIN
CLP 2
AP CUT
AP GAIN
OFFSET
Y IN
Yγ CONT
Vcc
FL182
FL301
DELAY
MX-7 BOARD 36
YL-YH OUT
SW
MIX
AGC MIX
Y GAIN
YL IN
L183, C233
14.3MHz BPF
Q195
BUFFER
IC181 15
IC181 12
IC181 13
0.35Vp-p
0.3Vp-p
0.54Vp-p
0.4Vp-p
B GAIN
R GAIN
DELTA B
DELTA R
B CONT
R CONT
C LEVEL
C PED
WWD+VD
R COMP
OFFSET CONT
G OUT
R-Y HUE
B-Y HUE
R-Y GAIN
B-Y GAIN
S1 IN
S3 IN
S2 IN
DC IN
MAT GAIN2
MAT GAIN1
GATE DET
PED
YL MATRIX 1
YL MATRIX 2
GATE
YL MIX
YL-YH OUT
YH OUT
C-γ CONT
Y-γ CONT
Y PED
R-Y OUT
B-Y OUT
TITLE PEDESTAL
CLAMP
BLANKING
TITLE (R-Y) MIX
TITLE (B-Y) MIX
TY MATRIX
IC253 6
IC253 5
0.6Vp-p
0.34Vp-p
0.76Vp-p
IC301 24
IC301 45
IC301 1
IC301 40
0.28Vp-p
0.5Vp-p
MODULATOR
DET
BLANKING FADER SUPRESS
C OUT
C IN
3.58MHz BPF
S AGC CONT
BURST LEVEL
B LEVEL CONT
LALT
1/2 & ALT
1/2
MOD
BURST GATE
4FSC
AF SC
HUE
BF
YL-YH
YH
SHP CLP
GAIN CONTROL
WHITE CLIP
Y FADER
Y BLK
SYNC CHARACTER MIX
VIDEO OUT
EVF OUT
CAM Y OUT (1)
CHARACTER
FADER
0.18μsec DELAY
NOISE SLICE
SYNC LEVEL
SET UP
VIDEO OUT
EVF OUT
DI-24P BOARD
TB
TG
TR
C BLK
TY CHR
VD
HD
A/D Y
AD EN
TITLE A/D
DIGITAL TITLE
CHECK POINT ARRAY
OFFSET MIX
Y(LPF) OUT
SHTTER EN
YO
Y1
CO
C1
V SUB
CCD OUT
ID(2)
YH(MIX OUT)
CAM Y
CAM C
OFFSET CONT
G OUT CHK
GND
AW ADJ
CAM ADJ
AUTO FOCUS

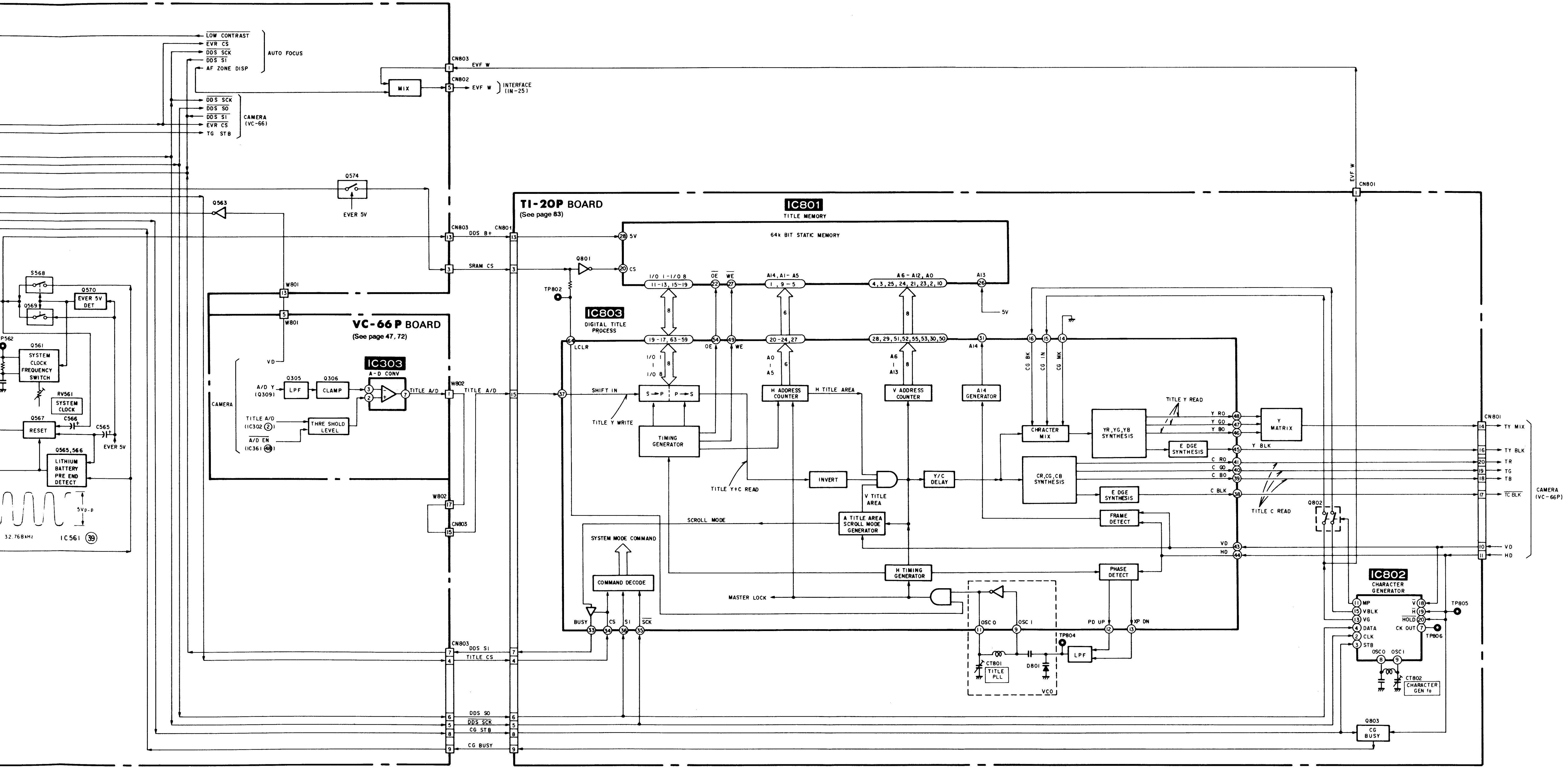
3-4. AUTO-FOCUS BLOCK DIAGRAM


DI-24P BOARD (AUTO FOCUS)
(See page 84)
LD-20P BOARD (See page 67)
ST-28 BOARD (See page 93)
IN-25 BOARD (See page 93)
CAMERA (VC-66 BOARD)
DIGITAL TITLE
IC612
AF PROCESS
IC613
AUTO FOCUS CPU
IC614
A/D CONVERTER
IC614
RESET
IC615
AD REF
IC611
EVR
IC702 (1/2)
FOCUS REG
IC702 (2/2)
FG DETECT
IC703
AUTO FOCUS MOTOR DRIVE
IC701
ZOOM MOTOR DRIVE
Q708
BUFFER
Q611
BUFFER
Q613
HPF 1
Q614
HPF 2
Q619
AMP
FL610
LPF
Q620,621
RECT
2 TO 1 ANALOG SW
7 LINE TO 1 LINE DATA MULTIPLEXER
ZOOM SWITCH BLOCK
IRIS CONT (Q102)
MAX GAIN
V SUB CONT
AGC REF
MACRO (IC361 ⑮)
AF CLK (4FSC) (Q142)
(DT-74 ⑦) VD(2)
(DT-74 ⑧) HD(2)
AGC CONT(3) (Q107)
YH (AF) (Q195)
HALL OUT
AGC CONT
ZP
REF 1V (IC615 ⑦)
REF 2V (IC615 ①)
IRIS CONT
IRIS ADJ
HALL OS
HALL OUT
FOCUS SPEED
FOCUS REF
FOCUS N
FOCUS ∞
FOCUS FG
ZOOM TELE
ZOOM WIDE
FOCUS FAR
FOCUS NEAR
AF ZONE DISP
CAM 5V
FSPD 3
FSPD 2
FSPD 1
FSPD 0
SS OUT
LOW CONTRAST
J STB
EVR CS
SYS RST
MISO
MOSI
SCK
XCS
AREA
CLK IN
AFSSW
DASTB
IRIS
HALL OFFSET
DDS SI
DDS SCK
Q610 (1/2)
Q707
CN805
CN802
W701
CN536
CN537
CN701
AF JIG
5V
REF 2V
REF 1V


LD-20P BOARD (See page 67)
IC613
AUTO FOCUS CPU
IC611
EVR
IC704 (1/2)
IRIS DRIVE
IC704 (2/2)
HALL AMP
IC702 (1/2)
FOCUS REG
IC702 (2/2)
FG DETECT
IC703
AUTO FOCUS MOTOR DRIVE
IC701
ZOOM MOTOR DRIVE
Q708 BUFFER
Q709 HALL OS BUFFER
Q611 BUFFER
Q704 CURRENT DETECT
Q703 CAM 5V DETECT
Q701, Q702 CURRENT DETECT
Q707
PS701
RV701 HALL
LENS BLOCK
ZOOM POSITION
M904 IRIS MOTOR
M905(1/2) FOCUS MOTOR
M905(1/2) ZOOM MOTOR
S901 FOCUS END SWITCH
ZOOM SWITCH BLOCK
ST-28 BOARD (See page 93)
IN-25 BOARD (See page 93)
AF JIG
CN805
CN802
W701
CN705
CN702
CN703
CN704
CN536
CN537
CN701
ZP
REF 1V(IC615⑦)
REF 2V(IC615①)
REF 1V
REF 2V
REF 1V(W701④)
REF 2V(W701⑤)
IRIS CONT
IRIS ADJ
DRIVE(+)
CONT(+)
CONT(-)
HALL(+)
HALL(-)
BIAS(+)
HALL OS
HALL OUT
FOCUS SPEED
FOCUS REF
FOCUS N
FOCUS ∞
FOCUS FG
FOCUS ND
FOCUS FD
ZOOM TELE
ZOOM WIDE
ZOOM W
ZOOM T
FOCUS FAR
FOCUS NEAR
AU UNREG
CAM 5V
MACRO
CLK IN
AREA
XCS
SCK
MOSI
MISO
SYS RST
EVR CS
LOW CONTRAST
J STB
FSPD 3
FSPD 2
FSPD 1
FSPD 0
SS OUT
SS
ZOOM T
ZOOM W
AFSSW DASTB
LD
DI
CLK
IRIS
FOCUS SPEED
HALL OFFSET
MAX GAIN
AGC REF
V SUB CONT
N.C.
IP SG
AF ZONE DISP
MCO 8
AREA
XCS
SCK
SI
SC
XRST
AD10
AD15
DO
D5
Q610(1/2)
Vcc
IN1
IN2
OUT 1
OUT 2
P GND
D GND
WP
TP
W
T

3-5. DIGITAL TITLER BLOCK DIAGRAM


FK-13 BOARD (See page 99)
S886 AUTO LOCK
W881
CN705
S884 SHUTTER SPEED
S883 FOCUS
S882 BUCK LIGHT
S885 TITLE
S881 WHT BAL
W882
W891
IC891
SW
S892 COLOR MODE
S894 TIME (NEXT)
S893 DATE(+)
S891 MEMORY
FK-17 BOARD (See page 100)
IN-25 BOARD (See page 93)
CN702
CN804
AUTO LOCK
COM 0
COM 2
COM 3
CMI 0
CMI 1
CMI 2
CMI 3
LI-15 BOARD
LITHIUM BATTERY
(See page 93)
CN851
ST-28 BOARD
(See page 93)
W535
CN537
LI 3V
W702
CN701
CN802
DI-24P BOARD (See page 84)
Q564 AUTO LOCK SW
Q562 (1/2) LOW CONT SW
Q562 (1/2) MODE SW
IC561
FEATURE CONTROL (DDS CPU)
CMO 4
CMO 0
CMO 2
CMO 3
CMI 0
CMI 1
CMI 2
CMI 3
EVR CS
TG STB
COSMO CS
DDS SCK
DDS SO
DDS SI
SRAM CS
TITLE CS
INT 1
CG STB
CG BUSY
LCD
VDD
TP566
TP564
TEST
SS5V
VTR PER
CL 2
CL 1
RESET
LIPE
X1
X2
CT561 CLOCK
X561 32.78kHz
5Vp-p
32.768kHz
IC561 (39)
S568
S569
Q570 EVER 5V DET
TP562
Q561 SYSTEM CLOCK FREQUENCY SWITCH
RV561 SYSTEM CLOCK
Q567 RESET
C566
C565
EVER 5V
Q565,566 LITHIUM BATTERY PRE END DETECT
LOW CONTRAST
EVR CS
DDS SCK
DDS SI
AF ZONE DISP
AUTO FOCUS
DDS SCK
DDS SO
DDS SI
EVR CS
TG STB
CAMERA (VC-66)
Q574
EVER 5V
Q563
MIX
CN803
EVF W
CN802
EVF W
INTERFACE (IN-25)
CN803
DDS B+
CN801
SRAM CS
W801
VC-66P BOARD (See page 47, 72)
VD
CAMERA
A/D Y (Q309)
Q305 LPF
Q306 CLAMP
IC303 A-D CONV
TITLE A/D
TITLE A/D (IC302 (2))
A/D EN (IC361 (48))
THRE SHOLD LEVEL
W802
CN803
DDS SI
TITLE CS
DDS SO
DDS SCK
CG STB
CG BUSY
TI-20P BOARD (See page 83)
IC801 TITLE MEMORY
64k BIT STATIC MEMORY
5V
Q801
CS
TP802
I/O 1-I/O 8
11-13, 15-19
OE
WE
A14, A1-A5
1, 9-5
A6-A12, A0
4,3,25,24,21,23,2,
IC803
DIGITAL TITLE PROCESS
LCLR
19-17, 63-59
20-24, 27
28,29,51,52,55,53,30,
I/O 1
I/O 8
A0
A5
A6
A13
SHIFT IN
S→P
P→S
TITLE Y WRITE
H ADDRESS COUNTER
H TITLE AREA
V ADDRESS COUNTER
TIMING GENERATOR
TITLE Y+C READ
INVERT
V TITLE AREA
SCROLL MODE
A TITLE AREA SCROLL MODE GENERATOR
SYSTEM MODE COMMAND
COMMAND DECODE
MASTER LOCK
H TIMING GENERATOR
BUSY
CS
SI
SCK


LOW CONTRAST
EVR CS
DDS SCK
DDS SI
AF ZONE DISP
AUTO FOCUS
DDS SCK
DDS SO
DDS SI
EVR CS
TG STB
CAMERA (VC-66)
MIX
CN803
EVF W
CN802
EVF W
INTERFACE (IN-25)
Q574
EVER 5V
Q563
CN803
DDS B+
SRAM CS
W801
S568
Q570
EVER 5V DET
Q569
P562
Q561
SYSTEM CLOCK FREQUENCY SWITCH
RV561
SYSTEM CLOCK
Q567
RESET
C566
C565
EVER 5V
Q565,566
LITHIUM BATTERY PRE END DETECT
5Vp-p
32.768kHz
IC561 (39)
VC-66P BOARD
(See page 47, 72)
VD
CAMERA
IC303
A-D CONV
A/D Y (Q309)
Q305
LPF
Q306
CLAMP
TITLE A/D (IC302 ②)
A/D EN (IC361 (48))
THRE SHOLD LEVEL
TITLE A/D
W802
TITLE A/D
CN803
DDS SI
TITLE CS
DDS SO
DDS SCK
CG STB
CG BUSY
TI-20P BOARD
(See page 83)
CN801
IC801
TITLE MEMORY
64k BIT STATIC MEMORY
5V
CS
Q801
TP802
I/O 1-I/O 8
11-13, 15-19
OE
WE
A14, A1-A5
1, 9-5
A6-A12, A0
4, 3, 25, 24, 21, 23, 2, 10
A13
5V
IC803
DIGITAL TITLE PROCESS
LCLR
19-17, 63-59
20-24, 27
28, 29, 51, 52, 55, 53, 30, 50
A14
I/O 1
I/O 8
A0
A5
A6
A13
SHIFT IN
TITLE Y WRITE
S→P
P→S
TIMING GENERATOR
H ADDRESS COUNTER
H TITLE AREA
V ADDRESS COUNTER
A14 GENERATOR
TITLE Y+C READ
INVERT
Y/C DELAY
V TITLE AREA
SCROLL MODE
A TITLE AREA SCROLL MODE GENERATOR
SYSTEM MODE COMMAND
COMMAND DECODE
H TIMING GENERATOR
MASTER LOCK
BUSY
CS
SI
SCK
OSC O
OSC I
CT801
TITLE PLL
D801
VCO
TP804
LPF
PD UP
XP DN
PHASE DETECT
FRAME DETECT
CG BK
CG IN
CG MK
CHRACTER MIX
YR, YG, YB SYNTHESIS
CR, CG, CB SYNTHESIS
E DGE SYNTHESIS
E DGE SYNTHESIS
TITLE Y READ
Y RO
Y GO
Y BO
Y BLK
C RO
C GO
C BO
C BLK
TITLE C READ
Y MATRIX
VD
HD
Q802
EVF W
CN801
TY MIX
TY BLK
TR
TG
TB
TC BLK
VD
HD
CAMERA (VC-66P)
IC802
CHARACTER GENERATOR
MP
VBLK
VG
DATA
CLK
STB
V
H
HOLD
CK OUT
OSCO
OSCI
TP805
TP806
CT802
CHARACTER GEN fo
Q803
CG BUSY

3-6. SYSTEM CONTROL SECTION FUNCTION DESCRIPTION

The system control section consists of following three microcomputers:

- DDS microcomputer μPD7508BGB
- EVR microcomputer MC68HC05N4FU
- AF microcomputer MC68HC05C4FU

3-6-1. DDS microcomputer μPD7508BGB (IC561 on DI-24P Board)

1. Function description

1) Internal data communication control
2) Date/time measurement
3) LCD indication
4) Reading of key matrix
   (White balance, electronic shutter, edit search +/ − , auto-lock, focus mode, counter reset, zero memory, title, store, color/mode, backlight compensation, date/forward, time/set, fader)

2. Operation modes

- As shown in the chart below, the operation mode is shifted according to the position of the power switch (STANDBY/LOCK) and whether or not there is a main battery.

- **The main DDS microcomputer functions in each mode is as follows.**

Mode	Main Battery	Power Switch	Microcomputer power supply	Clock Mode	Main Functions
BACK UP	No	STANDBY	LI 3V (Lithium battery)	500 ms period intermittent oscillation	● Backup of title and tape counter data ● Clock count operation
	Yes	LOCK			
CAM ON	Yes	STANDBY	SS 5V (Main battery)	Continuous oscillation	● All camera features ● Indication control for white balance, focus, titles, electronics shutter, etc.

3. Terminal function and input/output level (µ PD7508BGB)

Pin No.	Signal Name	I/O	Functions and I/O Level
1	CMI 0	I	Key matrix input signal. Normally "H". When key input, "L" pulse of 1V period.
2	CMI 1	I	
3	CMI 2	I	
4	CMI 3	I	
5	$\overline{\text{CMO 0}}$	O	Key matrix output signal. "L" pulse of 1V period.
6	$\overline{\text{CMO 1}}$	O	
7	$\overline{\text{CMO 2}}$	O	
8	$\overline{\text{CMO 3}}$	O	
15	RESET	I	Normally "L".
16	CL 1	I	System clock oscillation pin. ● When camera power ON: Continuous oscillation (oscillation frequency approx. 330 kHz). ● When power OFF backed up by lithium battery: 500 ms intermittent oscillation (oscillation frequency approx. 70 kHz)
18	CL 2	O	
19	INT 1	I	Interrupt input by camera VD. "H" pulse of 1V period.
21	$\overline{\text{DDS SCK}}$	I/O	Serial communication and serial clock input/output. V period "L" pulse train.
22	DDS SO	O	Serial communication and data output. V period "H" pulse train.
24	DDS SI	I	Serial communication and data input. V period "L" pulse train.
25	CG BUSY	I	Busy signal input from character generator. V period "H" pulse train.
26	VTR PWR	I	SS 5V power detection. "H" when power on.
27	LIPE	I	Lithium battery pre-end detection. Normally "H". "L" when lithium battery voltage drops.
28	$\overline{\text{TEST}}$	I	Test mode input. Normally "H".
29	CG STB	O	Strobe signal for character generator. 1V period "H" pulse train.
30	NC	O	
31	$\overline{\text{EVR CS}}$	O	Chip select signal to EVR microcomputer (IC361 on DI-24P board). "L" pulse of 1V period.
32	CMO 4	O	Key matrix output signal. "H" pulse of 1V period.
34	TITILE CS	O	Chip select signal to title controller (IC801 on TI-20P board). 1V period "H" pulse train.
35	SRAM CS	O	Chip select signal to (IC801 on TI-20P board). "H" during title operation.
36	TG STB	O	Strobe signal to timing generator (VC-66P board, DT-74 board). 1V period "H" pulse train.
38	X1	I	Crystal oscillation circuit for clock. Oscillation frequency is 32.768 kHz.
39	X2	O	

3-6-2. EVR microcomputer MC68HC05N4FU (IC361 on VC-66P Board)

1. Function description

1) EVR control
2) Auto white balance control
3) Electronic shutter

2. Pin function and input/output level (MC68HC05N4FU)

Pin No.	Signal Name	I/O	Functions and I/O Level
1	——		——
2	$\overline{\text{SSW}}$	O	"H" only during communicating with serial switching D/A converter. "H" pulse of V period.
3	$\overline{\text{SCLK}}$	O	Serial clock output. V period "L" pulse train.
4	SI	I	Serial data input. V period "H" pulse train.
5	SO	O	Serial data output. V period "L" pulse train.
6	$\overline{\text{EVR CS}}$	I	Communication request from DDS. "L" pulse of V period.
7	L IN	I	LANC input. L: 0, H: 1. V period "H" pulse train.
8	L OUT	O	LANC output. L: 0, H: 1. V period "H" pulse train.
9	$\overline{\text{CAM ADJ}}$	I	NORMAL/ADJUST selection. Normally "H". "L" during adjustment.
10	N.C		
11	SSW	O	Serial signal switching. "L" pulse of V period.
12, 13	LD	O	Data load instruction to EVR (IC252, IC302). "H" pulse of V period.
14	$\overline{\text{BACK LIGHT}}$	O	"L" during backlight compensation ON.
15	IN/$\overline{\text{OUT}}$	I	Control from AF microcomputer, Indoor (IN): H, outdoor (OUT): L according to brightness.
16	——		
17	VDD		Connected to EVER 5V.
18			GND
19	——	–	
20	PAL/$\overline{\text{NTSC}}$	I	Broadcast system selection. L: NTSC, H: PAL.
21	GND		——
22	GND		——
23	GND		——
24, 25	GND		——
26	GND	–	——
27	GND	–	——
28	CAM 5V	I	Camera power on monitoring. L: CAM OFF, H: CAM ON.
29	AW IN	I	AWB A/D timer stop. Pattern drive interrupt. Normally ??V period pulse.
30	AW ADJ	O	AWB preset data fetch. Normally "L". "H" during auto white balance adjustment.
31	——	–	NC
32	——	–	——
33	——	–	——
34	S3SW	O	AWB measurement signal selection. "H" pulse of 3V period.
35	S2SW	O	AWB measurement signal selection. "H" pulse of 3V period.
36	DISCHG	O	Capacitor reset pulse for timer measurement lamp voltage generation. "H" pulse of V period.
37	——	–	——
38	S1SW	O	AWB measurement signal selection. "H" pulse of 3V period.
39	——	–	——
40	OSC2	O	Built-in inverter output for oscillation. Oscillation frequency: 4 MHz.
41	OSC1	I	Built-in inverter input for oscillation.
42	VDD		Connected to EVER 5V.
43	——		——
44	$\overline{\text{RESET}}$		Normally "H". "L" when reset.
45	$\overline{\text{IRQ}}$		Connected to $\overline{\text{EVR CS}}$ signal. "L" pulse of V period.
46	——	–	Normally "H". "L" when reset.
47	——	–	Normally "H". "L" when reset.
48	$\overline{\text{A/D EN}}$	O	1-bit A/D converter operation ON/OFF output for titler. Normally "H". "L" for 7V period when title store button (S762 on CF-4 board) pressed.

3-6-3. AF microcomputer MC68HC05C4FU (IC613 on VC-66P Board)

1. Function description

1) AF control
2) Power focus
3) Zoom motor drive

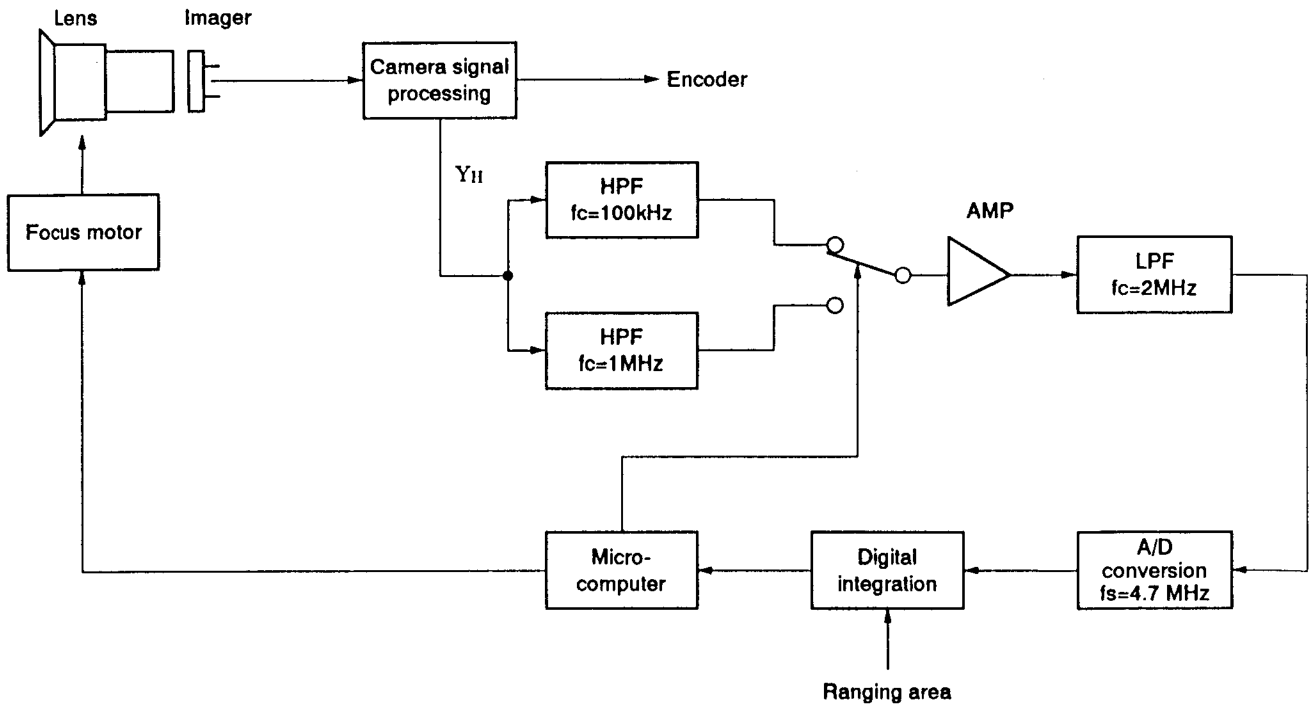
2. Auto focus system of this unit (A-AF: Image processing system)

The high frequency components of video signal (actually luminance signal) are microcomputer processed by TTL without using external sensors to control the focus).

3. Outline of operation

The frequency components from 100k to 2 MHz and from 1M to 2 MHz are extracted from the luminance (Y) signal, and these are digitally integrated for each field. This integration value is called the evaluation value. This evaluation value becomes the information for auto focusing, and focus ring is controlled by finding the peaks in the evaluation values based on the concepts that:

Picture is in focus → edges of image become clearer → high frequency components of image increase → evaluation value increases

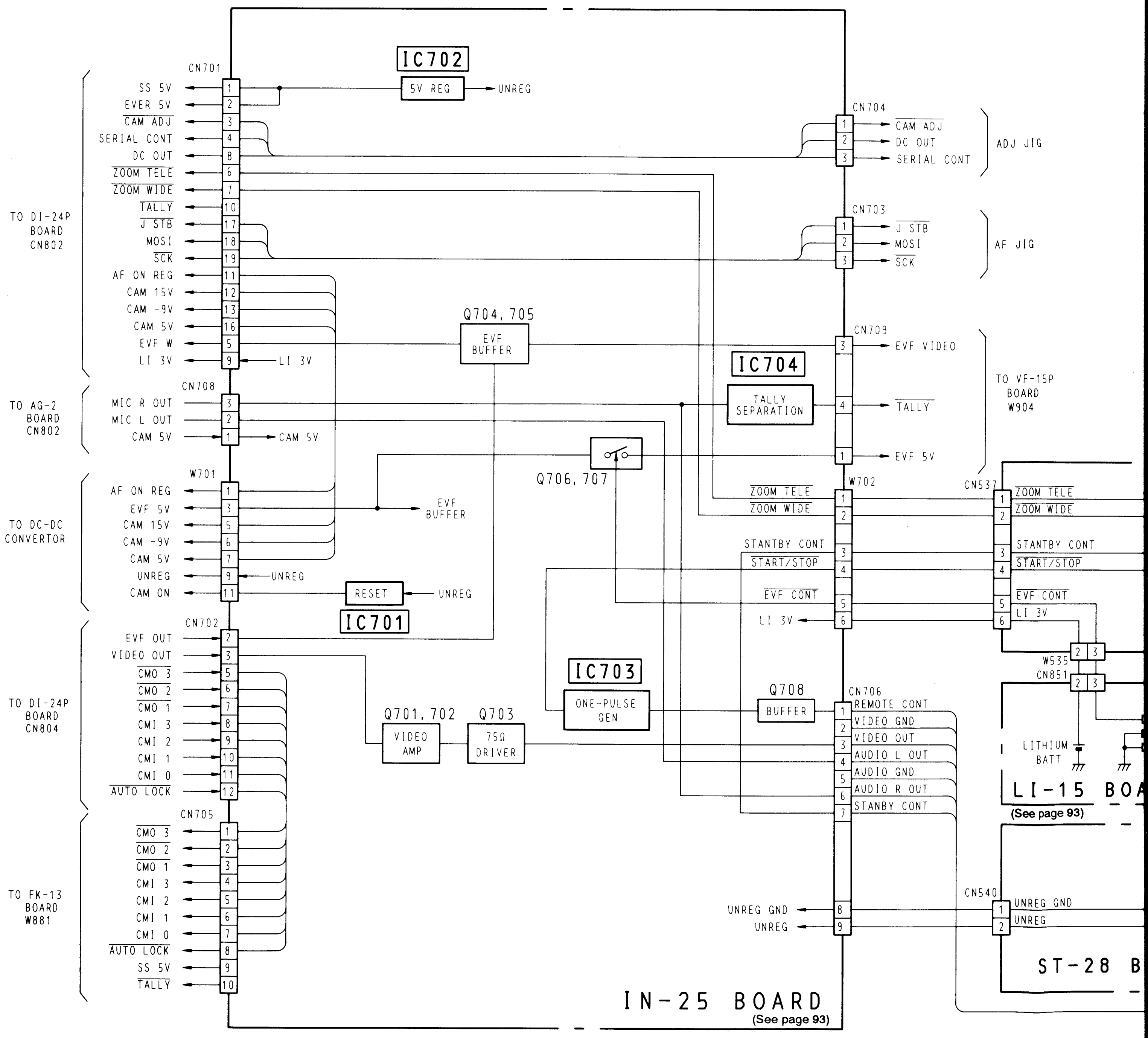


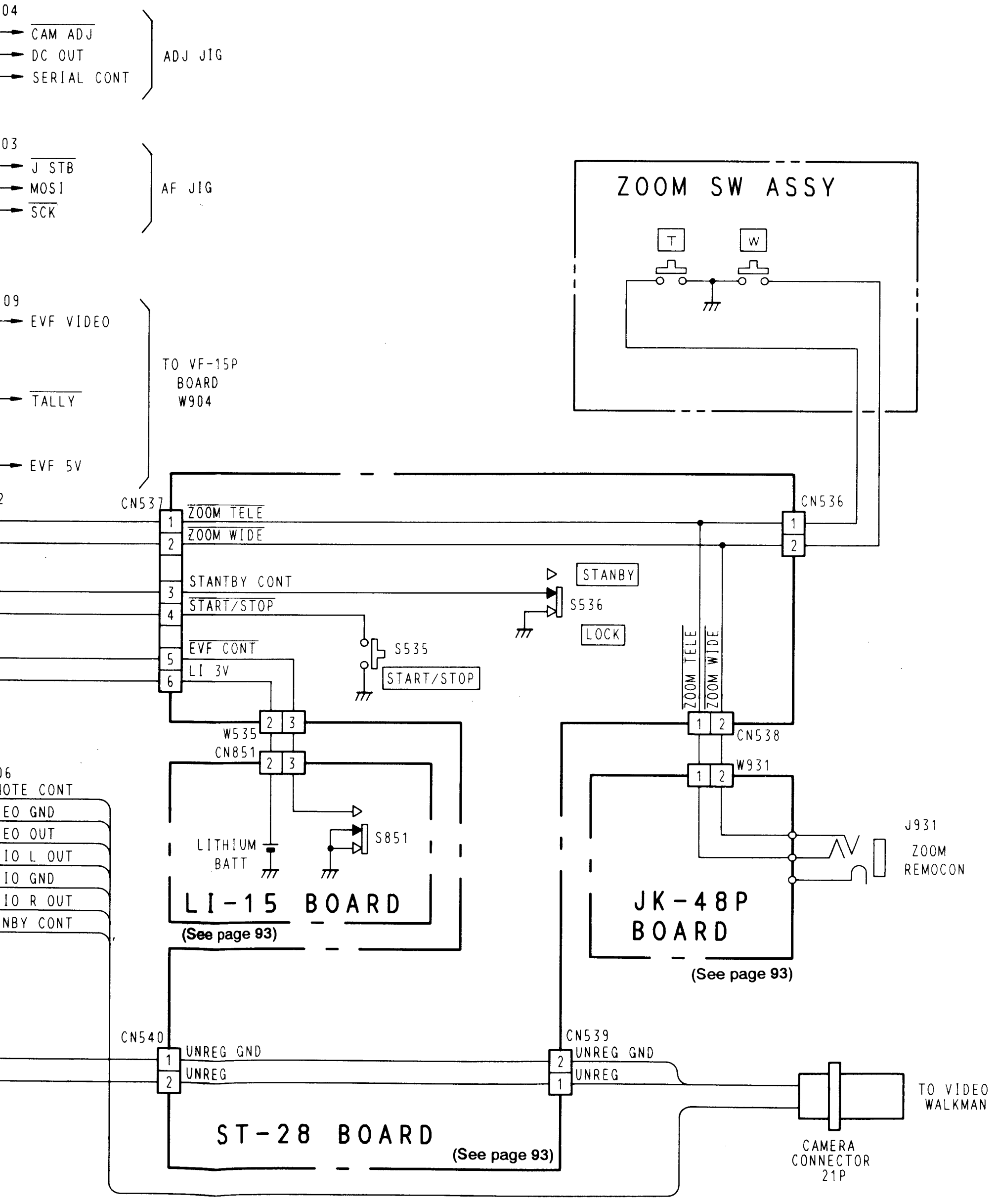
4. Pin function and Input/output level (MC68HC05C4FU)

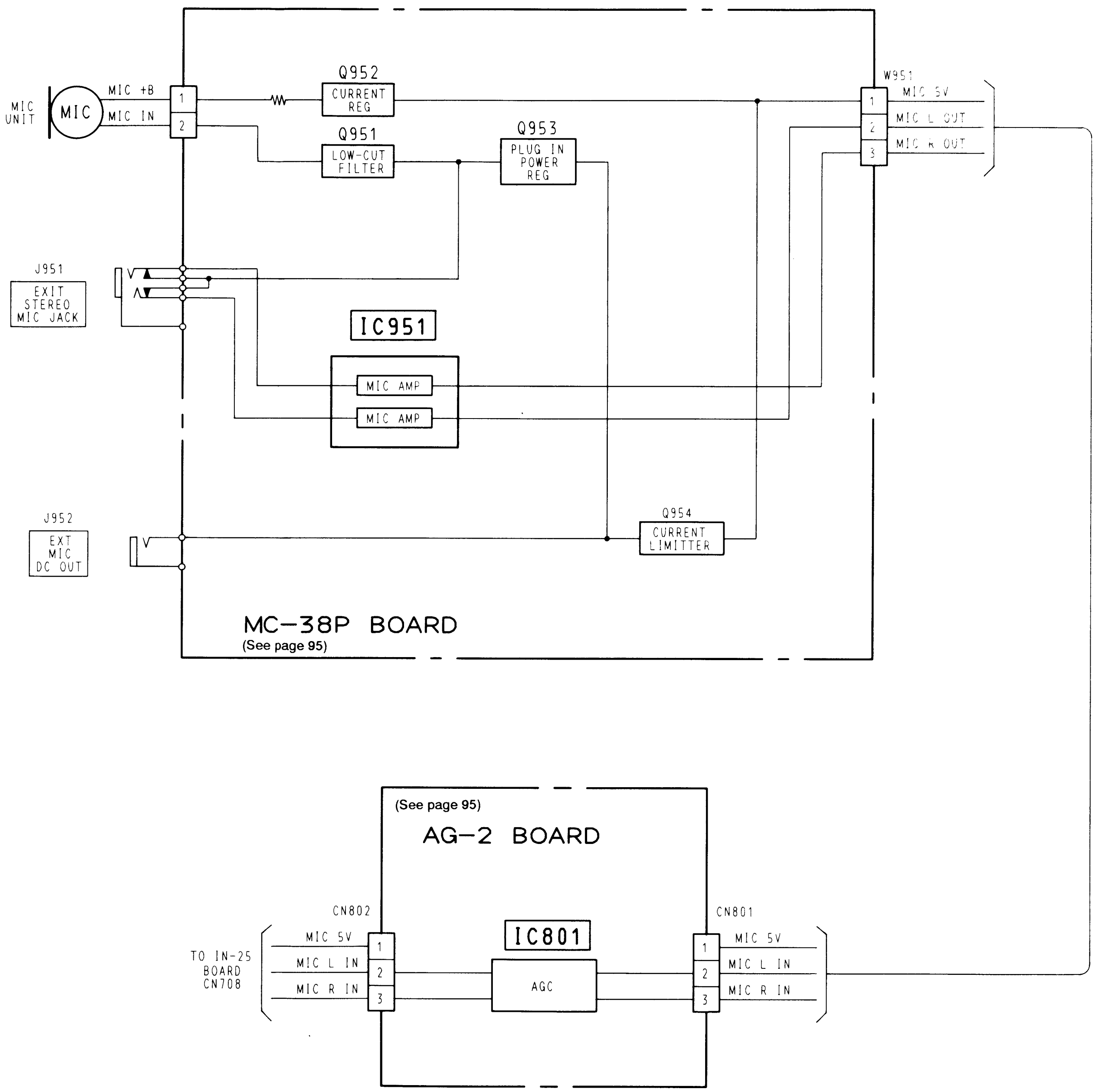
Pin No.	Signal Name	I/O	Functions and I/O Level
1	$\overline{\text{SS}}$ OUT	O	EVR data read timing output (PD5 SS input). V period "L" pulse train.
2	IN/$\overline{\text{OUT}}$	O	Indoors/outdoors determination according to aperture value. "H" for indoors and "L" for outdoors.
3			
4			
5			
6	$\overline{\text{LOW CONTRAST}}$	O	Signal to DDS microcomputer (IC561 on DI-24P board). "L" when subject has low contrast.
7	———	–	
8			Not used.
9	———	–	
10	———	–	
11	$\overline{\text{ZOOM T}}$	O	Normally "H". "L" when zoom motor is rotated in telephoto direction by remote commander.
12	$\overline{\text{ZOOM W}}$	O	Normally "H". "L" when zoom motor is rotated in wide angle direction by remote commander.
13	Focus N	O	Normally "L". "H" when focus motor is rotated in close range direction.
14	———	–	
15	Focus F	O	Normally "L". "H" when focus motor is rotated in far range direction.
16	F SPD ϕ	O	0 bit (LSB) of focus motor speed control signal.
17	———	–	
18	F SPD1	O	1 bit of focus motor speed control signal.
19	F SPD2	O	2 bits of focus motor speed control signal.
20	———	–	
21	F SPD3	O	3 bits (MSB) of focus motor speed control signal.
22	———	–	
23	Vss	–	Connected to GND.
24	Vss	–	Connected to GND.
25	———	–	
26	$\overline{\text{Focus NEAR}}$	I	"L" when focus ring is at close range edge.
27	———	–	
28	———	–	
29	———	–	
30	$\overline{\text{FOCUS FAR}}$	I	"L" when focus ring is at far range edge.
31	AF SSW	O	Timing output for bus selection. "H" pulse of V period.
32	———	–	
33	DA STB	O	D/A converter for AF. For data latch. V period "H" pulse train.
34	PAL/$\overline{\text{NTSC}}$	I	PAL/NTSC selection.
35	———	–	
36	$\overline{\text{J STB}}$	O	External display jig. For data latch. "L" pulse of V period.
37	XCS	O	Active "L" for communication request to IC612 CXD-1204. "L" pulse of V period.
38	TEST	I	Connected to VDD.
39	———	–	
40	MODE	I	Connected to VDD.
41	MISO	I/O	SPI MASTER: in…SLAVE: out…V period "H" pulse train.
42	MOSI	I/O	SPI MASTER: out…SLAVE: in…V period "L" pulse train.
43	$\overline{\text{SCK}}$	I/O	SPI SERIAL CLOCK. V period "L" pulse train.
44	———	–	
45	$\overline{\text{SS}}$	I	V period "L" pulse train.
46	———	–	

Pin No.	Signal Name	I/O	Functions and I/O Level
47	——	–	
48	$\overline{\text{EVR CS}}$	I	EVR data communication request ⌝⌞ from DDS microcomputer. "L" pulse of V period.
49	——	–	
50	——	–	
51	$\overline{\text{Focus FG}}$	I	Interrupt generation by Focus motor FG ⌝⌞ . "H" when auto focus OFF. "L" pulse of period according to Focus motor rotation speed when auto focus ON.
52	CLK OUT	O	Waveform shaped output of Pin (54) clock (1.79 MHz)
53	——	–	
54	CLK IN	I	External clock input. 14.3 MHz clock input to Pin ㉘ of IC612 is divided by 8.
55	VDD		CAM 5V
56	——	–	
57	——	–	
58	——	–	
59	——	–	
60	$\overline{\text{SYS RST}}$	I	Normally "H". "L" when resetting.
61	AREA	I	Interrupt generation by ⌝⌞ rom CXD-1204 (IC612). V period pulse
62	VPP		CAM 5V
63	WND W/$\overline{\text{N}}$	I	Auto focus ranging area switching. Connected to VDD by 100 kΩ (Fixed to WIDE).
64	——	–	

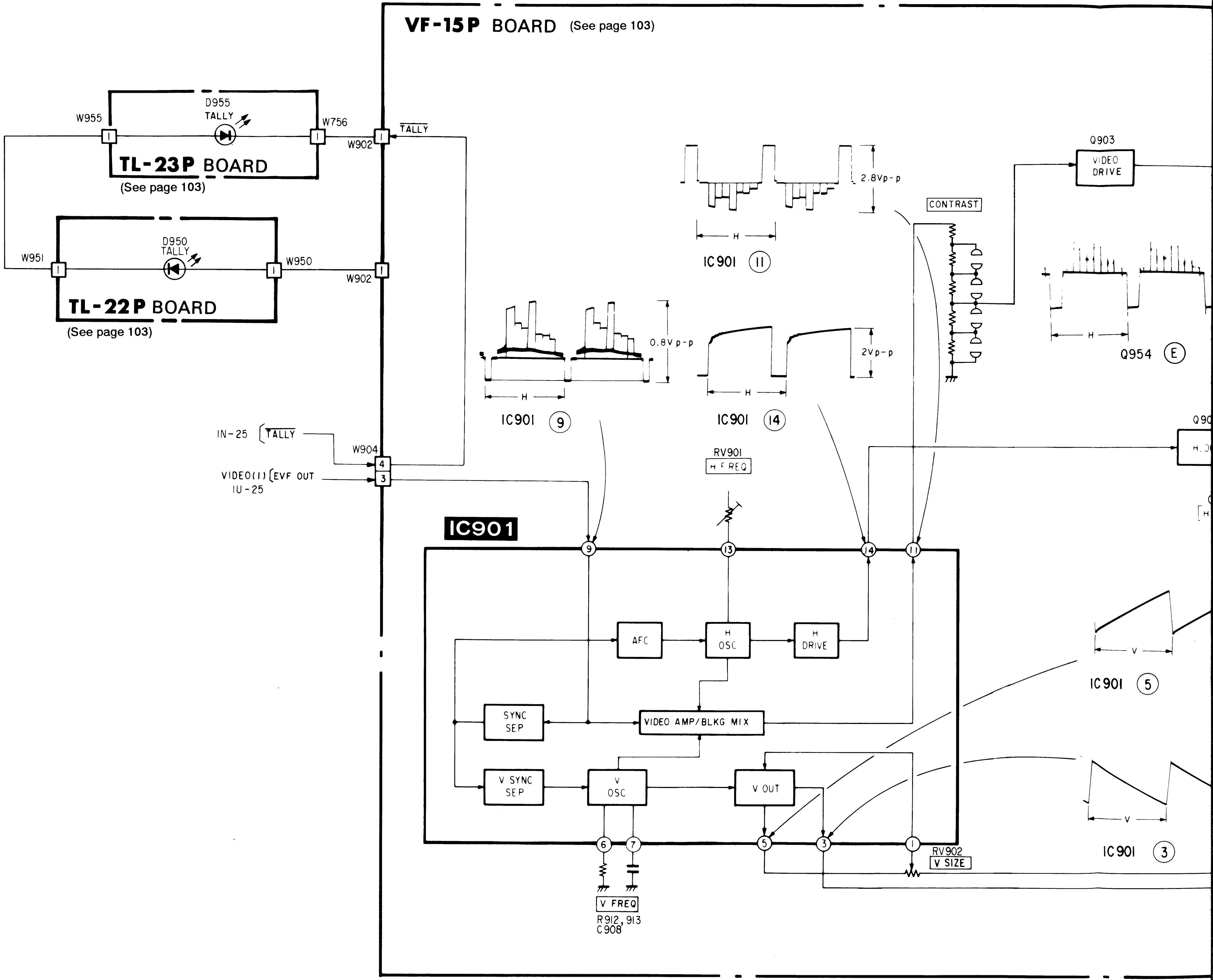
3-7. INTERFACE BLOCK DIAGRAM

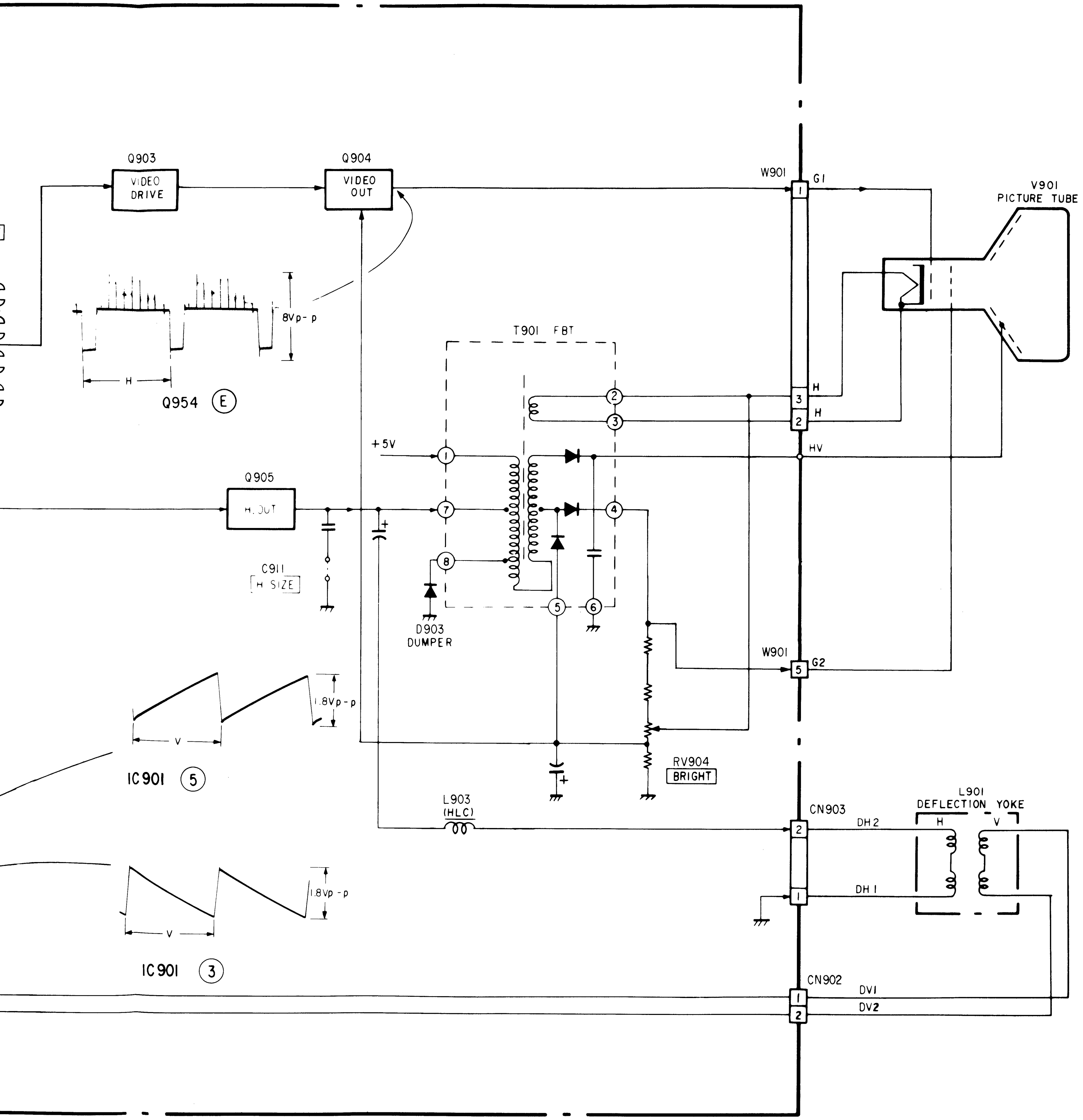

IN-25 BOARD
(See page 93)
LI-15 BOA
(See page 93)
ST-28 B
IC702
5V REG
UNREG
CN701
SS 5V
EVER 5V
CAM ADJ
SERIAL CONT
DC OUT
ZOOM TELE
ZOOM WIDE
TALLY
J STB
MOSI
SCK
AF ON REG
CAM 15V
CAM -9V
CAM 5V
EVF W
LI 3V
TO DI-24P BOARD CN802
CN708
MIC R OUT
MIC L OUT
CAM 5V
TO AG-2 BOARD CN802
W701
AF ON REG
EVF 5V
CAM 15V
CAM -9V
CAM 5V
UNREG
CAM ON
TO DC-DC CONVERTOR
RESET
IC701
CN702
EVF OUT
VIDEO OUT
CMO 3
CMO 2
CMO 1
CMI 3
CMI 2
CMI 1
CMI 0
AUTO LOCK
TO DI-24P BOARD CN804
CN705
CMO 3
CMO 2
CMO 1
CMI 3
CMI 2
CMI 1
CMI 0
AUTO LOCK
SS 5V
TALLY
TO FK-13 BOARD W881
Q704, 705
EVF BUFFER
Q706, 707
Q701, 702
VIDEO AMP
Q703
75Ω DRIVER
IC703
ONE-PULSE GEN
Q708
BUFFER
IC704
TALLY SEPARATION
CN704
CAM ADJ
DC OUT
SERIAL CONT
ADJ JIG
CN703
J STB
MOSI
SCK
AF JIG
CN709
EVF VIDEO
TALLY
EVF 5V
TO VF-15P BOARD W904
W702
ZOOM TELE
ZOOM WIDE
STANTBY CONT
START/STOP
EVF CONT
LI 3V
CN537
W535
CN851
LITHIUM BATT
CN706
REMOTE CONT
VIDEO GND
VIDEO OUT
AUDIO L OUT
AUDIO GND
AUDIO R OUT
STANBY CONT
UNREG GND
UNREG
CN540


CAM ADJ
DC OUT
SERIAL CONT
ADJ JIG
J STB
MOSI
SCK
AF JIG
EVF VIDEO
TALLY
EVF 5V
TO VF-15P BOARD W904
ZOOM SW ASSY
T
W
CN537
ZOOM TELE
ZOOM WIDE
STANTBY CONT
START/STOP
EVF CONT
LI 3V
CN536
STANBY
S536
LOCK
S535
START/STOP
W535
CN851
LITHIUM BATT
S851
LI-15 BOARD
(See page 93)
ZOOM TELE
ZOOM WIDE
CN538
W931
J931
ZOOM REMOCON
JK-48P BOARD
(See page 93)
CN540
UNREG GND
UNREG
CN539
UNREG GND
UNREG
ST-28 BOARD
(See page 93)
TO VIDEO WALKMAN
CAMERA CONNECTOR 21P
OTE CONT
EO GND
EO OUT
IO L OUT
IO GND
IO R OUT
NBY CONT

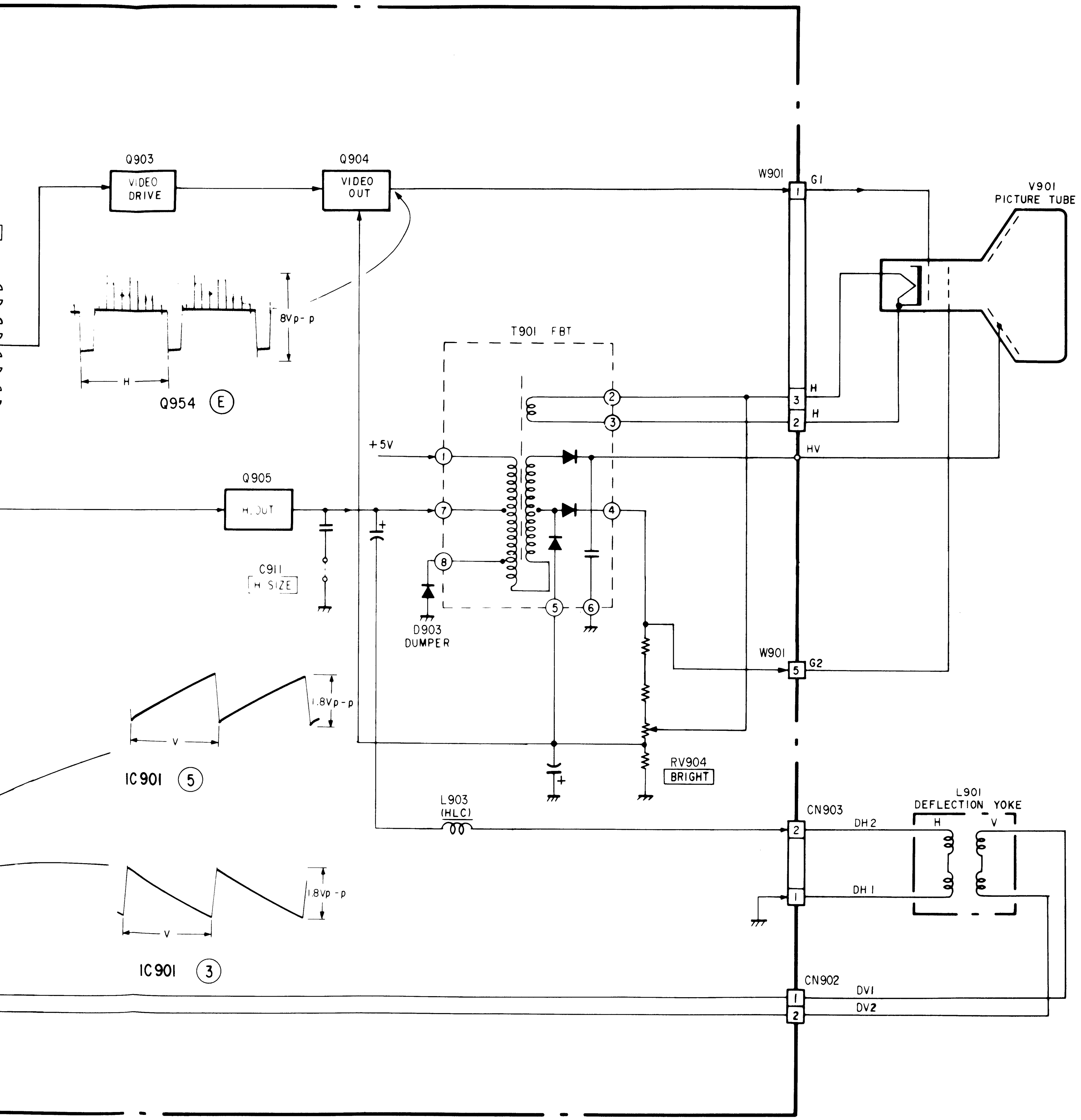

MIC UNIT
MIC
MIC +B
MIC IN
Q952
CURRENT REG
Q951
LOW-CUT FILTER
Q953
PLUG IN POWER REG
W951
MIC 5V
MIC L OUT
MIC R OUT
J951
EXIT STEREO MIC JACK
IC951
MIC AMP
MIC AMP
J952
EXT MIC DC OUT
Q954
CURRENT LIMITTER
MC-38P BOARD
(See page 95)
(See page 95)
AG-2 BOARD
CN802
TO IN-25 BOARD CN708
MIC 5V
MIC L IN
MIC R IN
IC801
AGC
CN801
MIC 5V
MIC L IN
MIC R IN

3-8. VIEW FINDER BLOCK DIAGRAM

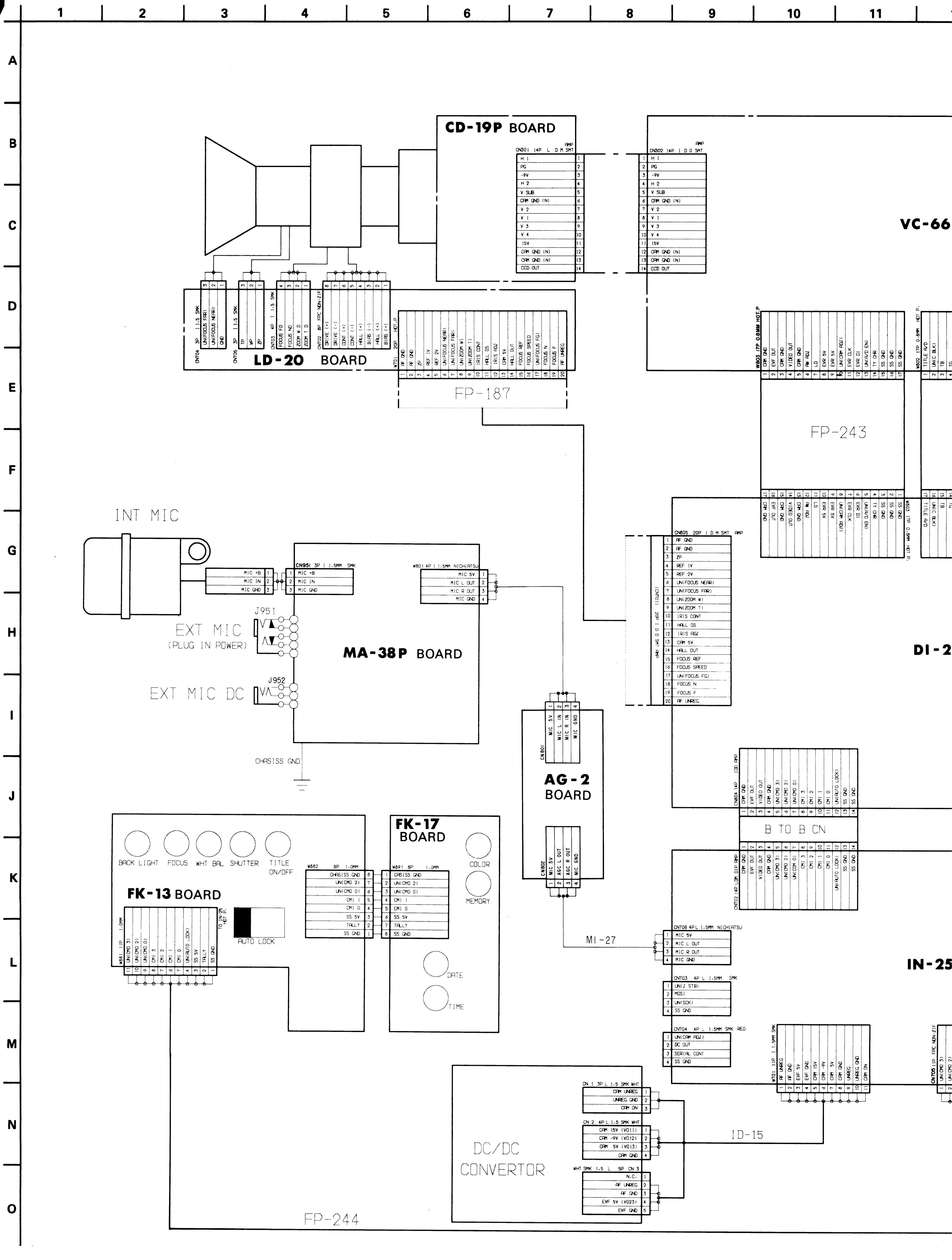

VF-15P BOARD (See page 103)
TL-23P BOARD (See page 103)
TL-22P BOARD (See page 103)
D955 TALLY
D950 TALLY
W955
W756
W902
W951
W950
W904
TALLY
IN-25 TALLY
VIDEO(1) EVF OUT IU-25
IC901
2.8Vp-p
0.8Vp-p
2Vp-p
H
V
IC901 ⑪
IC901 ⑨
IC901 ⑭
IC901 ⑤
IC901 ③
Q954 Ⓔ
Q903 VIDEO DRIVE
CONTRAST
RV901 H FREQ
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
RV902 V SIZE
V FREQ
R912, 913 C908

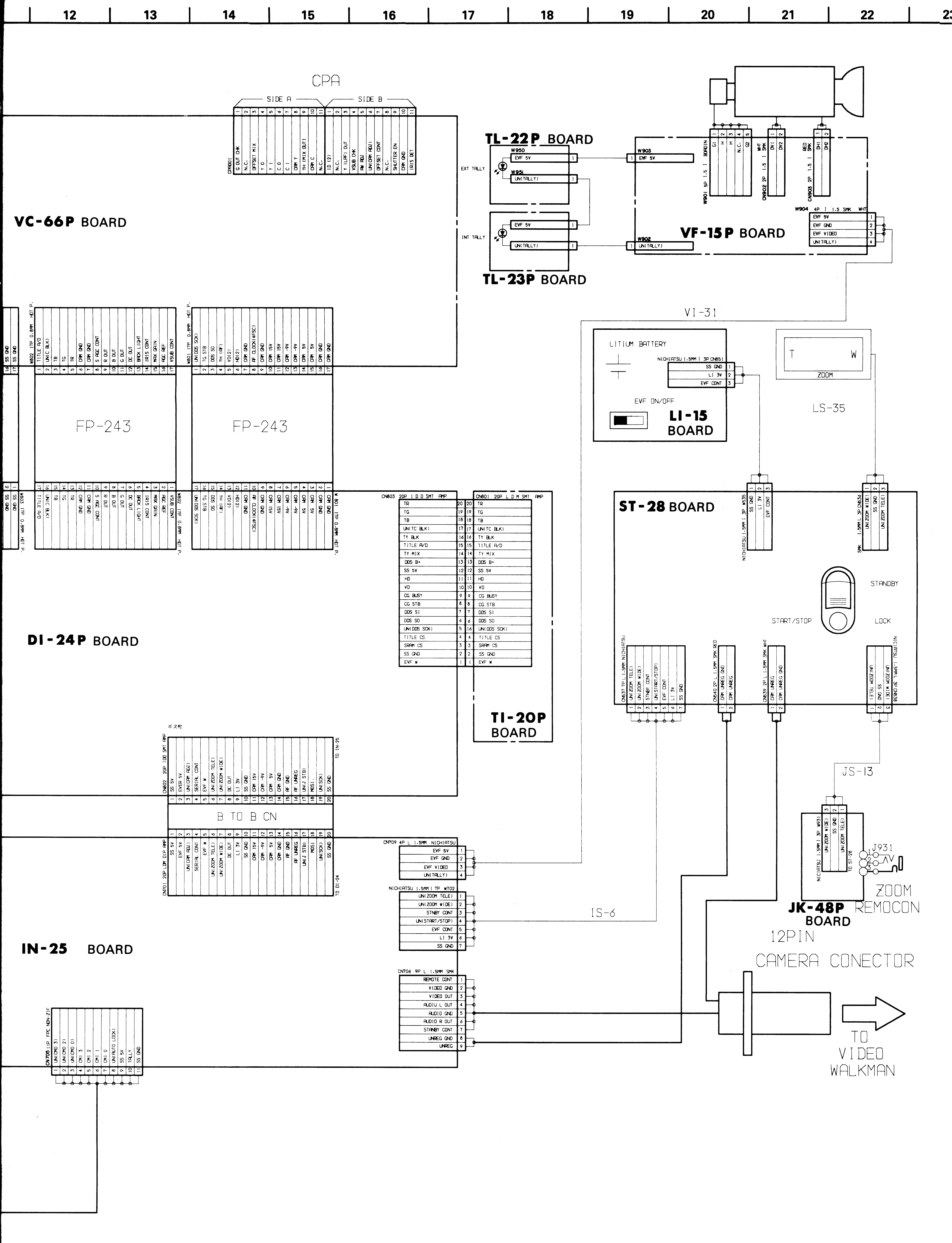


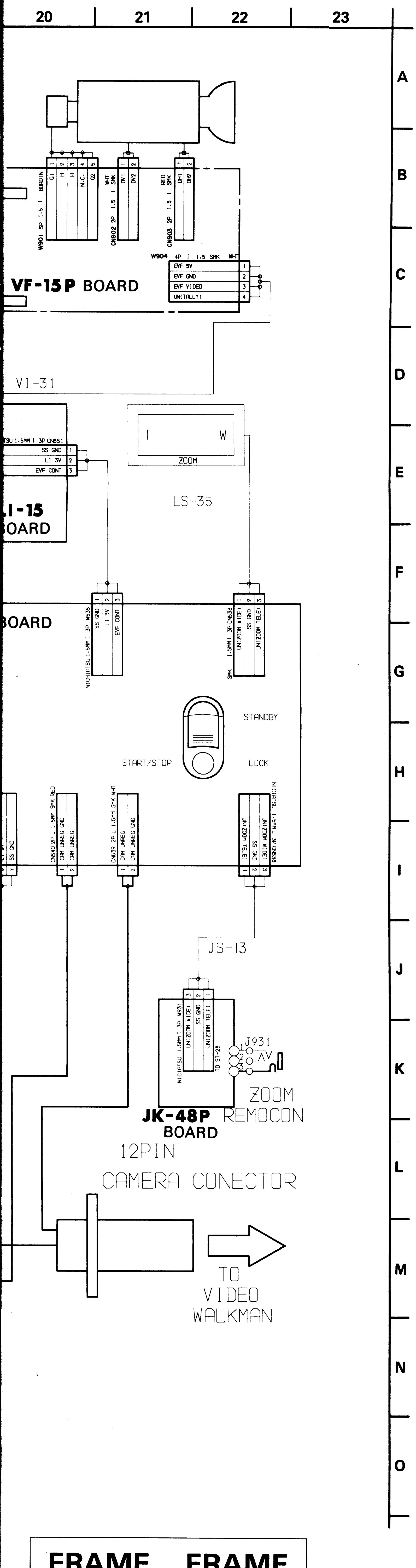
Q903
VIDEO DRIVE
Q904
VIDEO OUT
W901
G1
V901
PICTURE TUBE
8Vp-p
H
Q954
E
T901 FBT
+5V
2
3
1
H
H
HV
Q905
H.OUT
7
4
8
5
6
C911
H SIZE
D903
DUMPER
W901
5
G2
1.8Vp-p
V
IC901
5
RV904
BRIGHT
L903
(HLC)
CN903
DH2
L901
DEFLECTION YOKE
H
V
2
1
DH1
1.8Vp-p
V
IC901
3
CN902
DV1
DV2
1
2


Q903
VIDEO DRIVE
Q904
VIDEO OUT
W901
G1
1
V901
PICTURE TUBE
8Vp-p
H
Q954 Ⓔ
T901 FBT
②
③
3
H
2
H
HV
+5V
①
⑦
⑧
④
⑤
⑥
Q905
H. OUT
C911
H SIZE
D903
DUMPER
W901
5
G2
1.8Vp-p
V
IC901 ⑤
RV904
BRIGHT
L903
(HLC)
CN903
2
DH2
1
DH1
L901
DEFLECTION YOKE
H
V
1.8Vp-p
V
IC901 ③
CN902
1
DV1
2
DV2

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
CD-19P BOARD
CN301 14P L D M SMT AMP
H 1
PG
-9V
H 2
V SUB
CAM GND (N)
V 2
V 1
V 3
V 4
15V
CAM GND (N)
CAM GND (N)
CCD OUT
CN302 14P I D O SMT AMP
VC-66
LD-20 BOARD
CN704 3P 1.5 SMK
UN(FOCUS FAR)
UN(FOCUS NEAR)
GND
CN705 3P 1.5 SMK
TP
WP
ZP
CN703 4P 1.5 SMK
FOCUS FD
FOCUS ND
ZOOM W D
ZOOM T D
CN702 8P FPC NON-ZIF
DRIVE (+)
DRIVE (-)
CONT (-)
CONT (+)
HALL (-)
BIAS (-)
HALL (+)
BIAS (+)
W701 20P HOT.P
AF GND
AF GND
ZP
REF 1V
REF 2V
UN(FOCUS NEAR)
UN(FOCUS FAR)
UN(ZOOM W)
UN(ZOOM T)
IRIS CONT
IRIS ADJ
CAM 5V
HALL OUT
FOCUS REF
FOCUS SPEED
UN(FOCUS FG)
FOCUS N
FOCUS F
AF UNREG
FP-187
W803 17P 0.8MM HOT.P
CAM GND
EVF OUT
CAM GND
VIDEO OUT
CAM GND
AW ADJ
LD
EVR 5V
EVR 5V
UN(CAM ADJ)
EVR CLK
EVR DI
UN(A/D EN)
TY CHR
SS GND
SS GND
SS GND
FP-243
W802 17P 0.8MM HOT.P
TITLE A/D
UN(C BLK)
TB
INT MIC
MIC +B
MIC IN
MIC GND
CN951 3P 1.5MM SMK
W801 4P 1.5MM NICHIATSU
MIC 5V
MIC L OUT
MIC R OUT
MIC GND
J951
EXT MIC
(PLUG IN POWER)
J952
EXT MIC DC
MA-38P BOARD
CHASISS GND
CN805 20P I D M SMT AMP
(CN701) 20P I D O SMT AMP
AF GND
AF GND
ZP
REF 1V
REF 2V
UN(FOCUS NEAR)
UN(FOCUS FAR)
UN(ZOOM W)
UN(ZOOM T)
IRIS CONT
HALL OS
IRIS ADJ
CAM 5V
HALL OUT
FOCUS REF
FOCUS SPEED
UN(FOCUS FG)
FOCUS N
FOCUS F
AF UNREG
DI-2
CN801
MIC 5V
MIC L IN
MIC R IN
MIC GND
AG-2 BOARD
CN802
MIC 5V
AGC L OUT
AGC R OUT
MIC GND
MI-27
CN804 14P IDO AMP
CAM GND
EVF OUT
VIDEO OUT
CAM GND
UN(CMD 3)
UN(CMD 2)
UN(CMD 0)
CMI 3
CMI 2
CMI 1
CMI 0
UN(AUTO LOCK)
SS GND
SS GND
B TO B CN
CN702 14P LDM DIP AMP
FK-13 BOARD
BACK LIGHT
FOCUS
WHT BAL
SHUTTER
TITLE ON/OFF
AUTO LOCK
W881 11P 1.0MM
TO IN-25 40 P
UN(CMD 3)
UN(CMD 2)
UN(CMD 0)
CMI 3
CMI 2
CMI 1
CMI 0
UN(AUTO LOCK)
SS 5V
TALLY
SS GND
W882 8P 1.0MM
CHASISS GND
UN(CMD 2)
UN(CMD 0)
CMI 1
CMI 0
SS 5V
TALLY
SS GND
FK-17 BOARD
W891 8P 1.0MM
COLOR
MEMORY
DATE
TIME
FP-244
CN708 4P L 1.5MM NICHIATSU
MIC 5V
MIC L OUT
MIC R OUT
MIC GND
CN703 4P L 1.5MM SMK
UN(J STB)
MOSI
UN(SCK)
SS GND
CN704 4P L 1.5MM SMK RED
UN(CAM ADJ)
DC OUT
SERIAL CONT
SS GND
IN-25
W701 11P 1.5MM SMK
AF UNREG
AF GND
EVF 5V
EVF GND
CAM 15V
CAM -9V
CAM 5V
CAM GND
UNREG
UNREG GND
CAM ON
CN705 11P FPC NON-ZIF
UN(CMD 3)
UN(CMD 2)
DC/DC CONVERTOR
CN 1 3P L 1.5 SMK WHT
CAM UNREG
UNREG GND
CAM ON
CN 2 4P L 1.5 SMK WHT
CAM 15V (VO11)
CAM -9V (VO12)
CAM 5V (VO13)
CAM GND
WHT SMK 1.5 L 5P CN 3
N.C.
AF UNREG
AF GND
EVF 5V (VO23)
EVF GND
ID-15


12
13
14
15
16
17
18
19
20
21
22
CPA
SIDE A
SIDE B
VC-66P BOARD
TL-22P BOARD
EXT TALLY
INT TALLY
TL-23P BOARD
VF-15P BOARD
VI-31
LITIUM BATTERY
EVF ON/OFF
LI-15 BOARD
ZOOM
LS-35
FP-243
FP-243
ST-28 BOARD
STANDBY
START/STOP
LOCK
DI-24P BOARD
TI-20P BOARD
B TO B CN
JS-13
J931
JK-48P BOARD
ZOOM REMOCON
IS-6
IN-25 BOARD
12PIN CAMERA CONECTOR
TO VIDEO WALKMAN


20
21
22
23
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
W901 5P 1.5 I BORDIN
G1
H
H
N.C.
G2
CN902 2P 1.5 I WHT SMK
DV1
DV2
CN903 2P 1.5 I RED SMK
DH1
DH2
W904 4P I 1.5 SMK WHT
EVF 5V
EVF GND
EVF VIDEO
UN(TALLY)
VF-15P BOARD
VI-31
SS GND
LI 3V
EVF CONT
LI-15
BOARD
T
W
ZOOM
LS-35
BOARD
NICHIATSU 1.5MM I 3P W535
SS GND
LI 3V
EVF CONT
SMK 1.5MM L 3P CN536
UN(ZOOM WIDE)
SS GND
UN(ZOOM TELE)
STANDBY
START/STOP
LOCK
SS GND
CN540 2P L 1.5MM SMK RED
CAM UNREG GND
CAM UNREG
CN539 2P L 1.5MM SMK WHT
CAM UNREG GND
CAM UNREG
NICHIATSU 1.5MM L 3P CN538
UN(ZOOM TELE)
SS GND
UN(ZOOM WIDE)
JS-13
NICHIATSU 1.5MM I 3P W931
UN(ZOOM WIDE)
SS GND
UN(ZOOM TELE)
TO ST-28
J931
AV
ZOOM
REMOCON
JK-48P
BOARD
12PIN
CAMERA CONECTOR
TO
VIDEO
WALKMAN

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ■ : Parts mounted on the conductor side.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.*

  } The inner two layers' patterns are not indicated.
- Circled numbers refer to waveforms.*
- (B) or (F), etc. of capacitors indicate the temperature characteristics.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the pattern face are indicated.

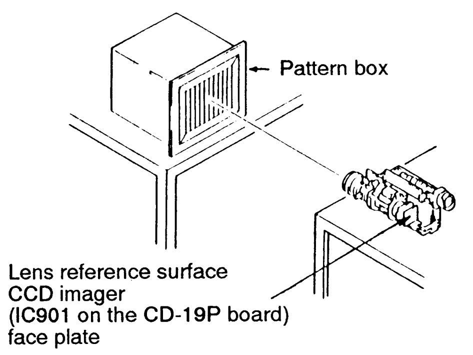
- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊡ : nonflammable resistor.
- ⊡ : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repeair.*
- ▬ : B+ Line.*
- - - - : B– Line*.
- ⇨ : IN/OUT direction of (+, –) B LINE.*
- Circled numbers refer to waveforms.*

Note: The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

When indicating parts by refer- ence number, please include the board name.

- **Measuring conditions voltage value and waveform. (CAMERA, DIGITAL TITLE block)**
- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points. Readings are taken with a digital multimeter (DC 10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

1. Connection


Pattern box
Lens reference surface
CCD imager
(IC901 on the CD-19P board)
face plate

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

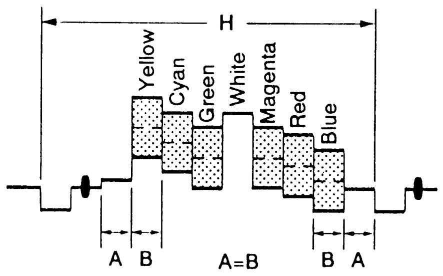

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A

Fig. a (Video output terminal output waveform)

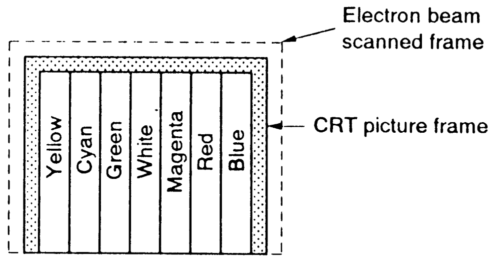
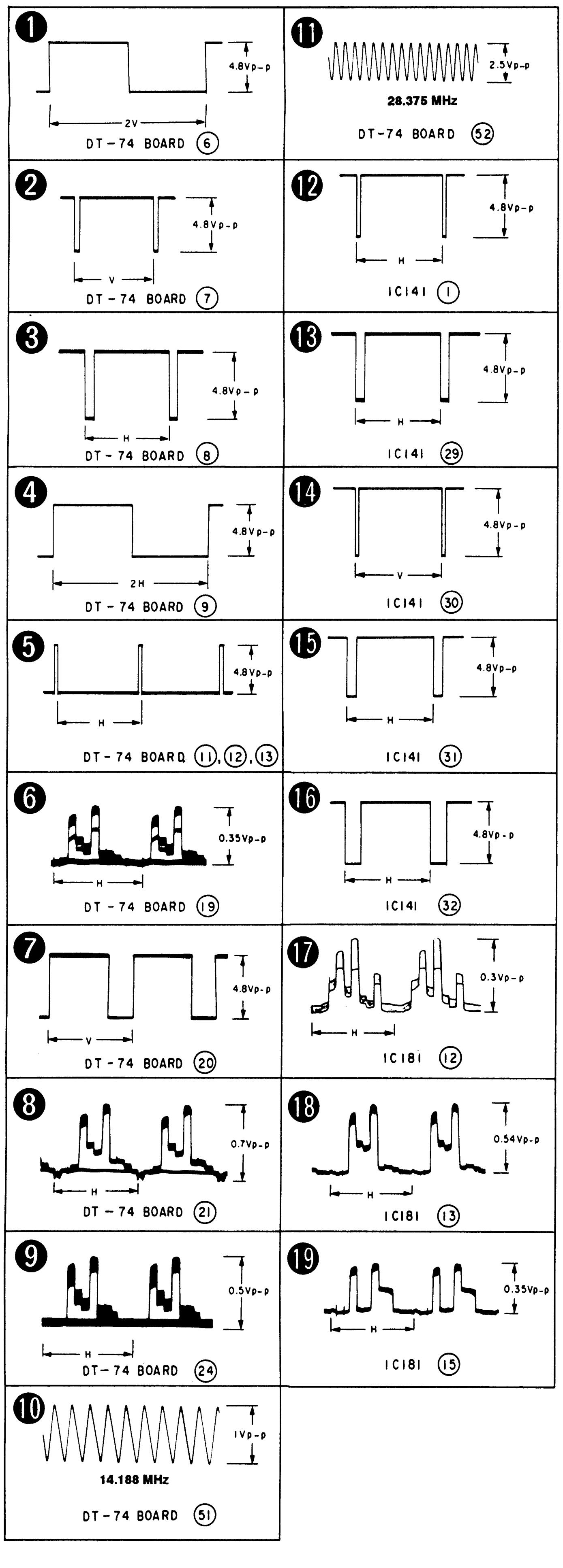

Electron beam scanned frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. b (Picture on monitor TV)

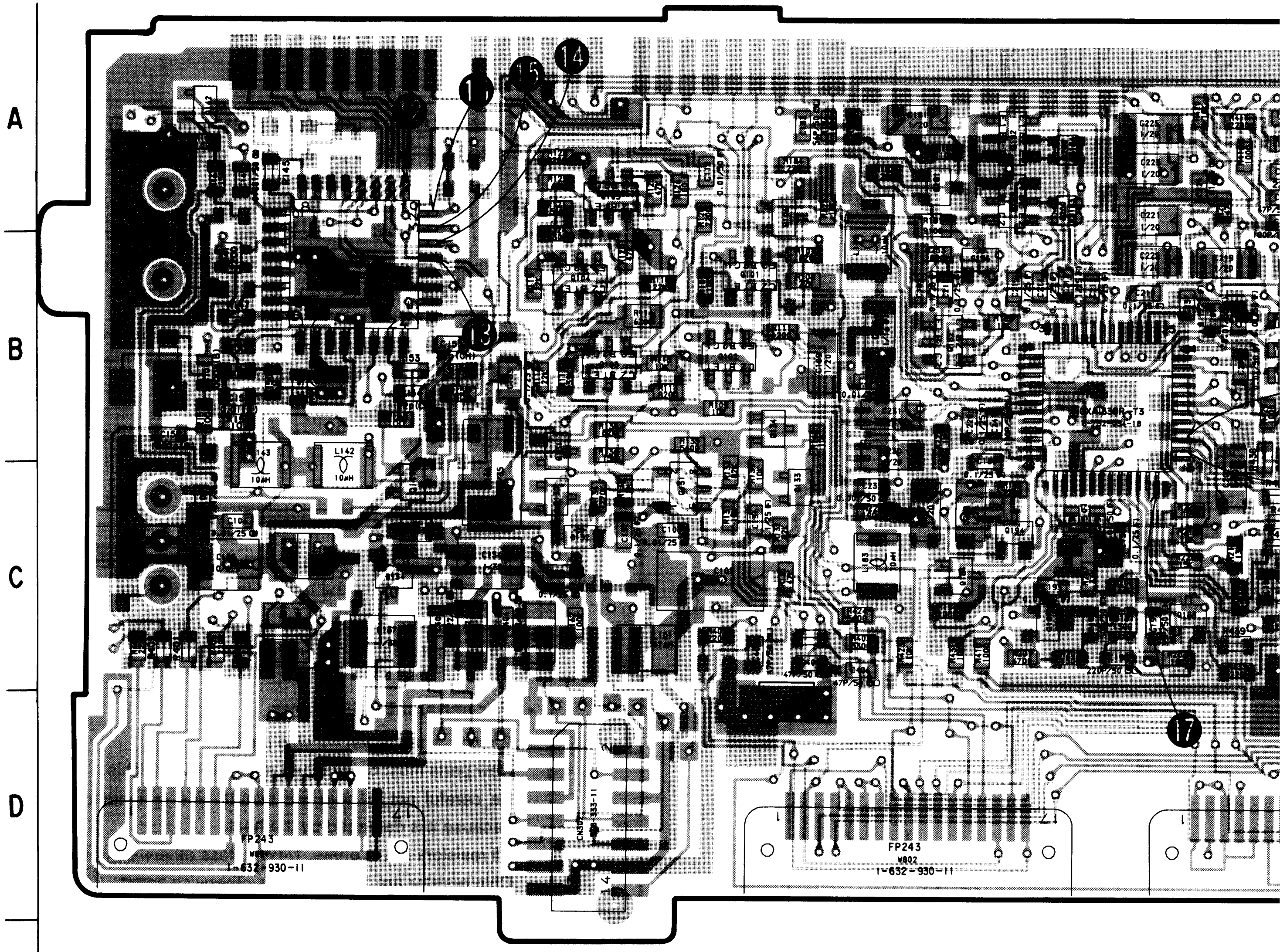
- *: indicated by the color red.

- VC-66P board has four layers structure but inner two layers' patterns are omitted.

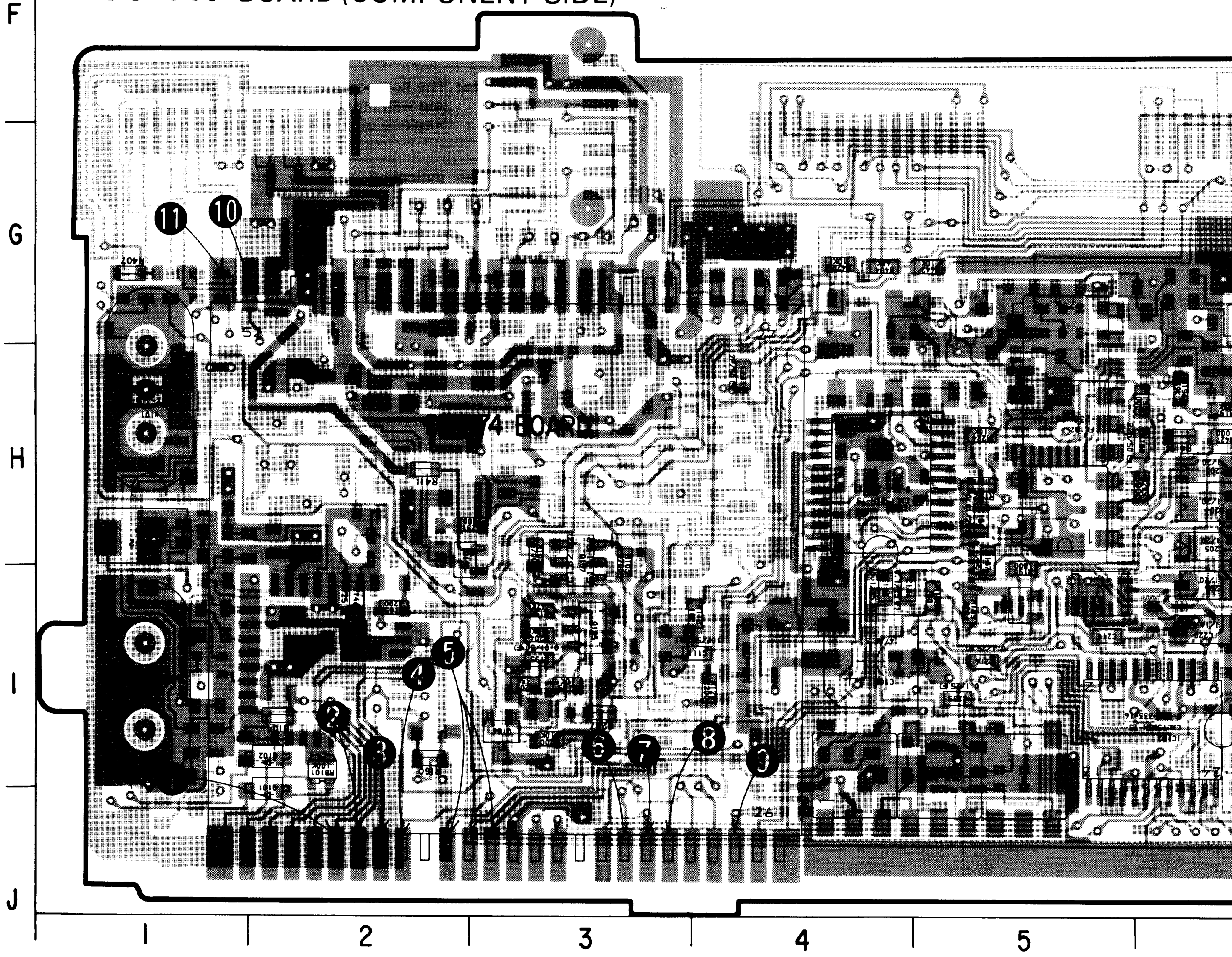
VC-66P BOARD (TG/SH, SG, MX)

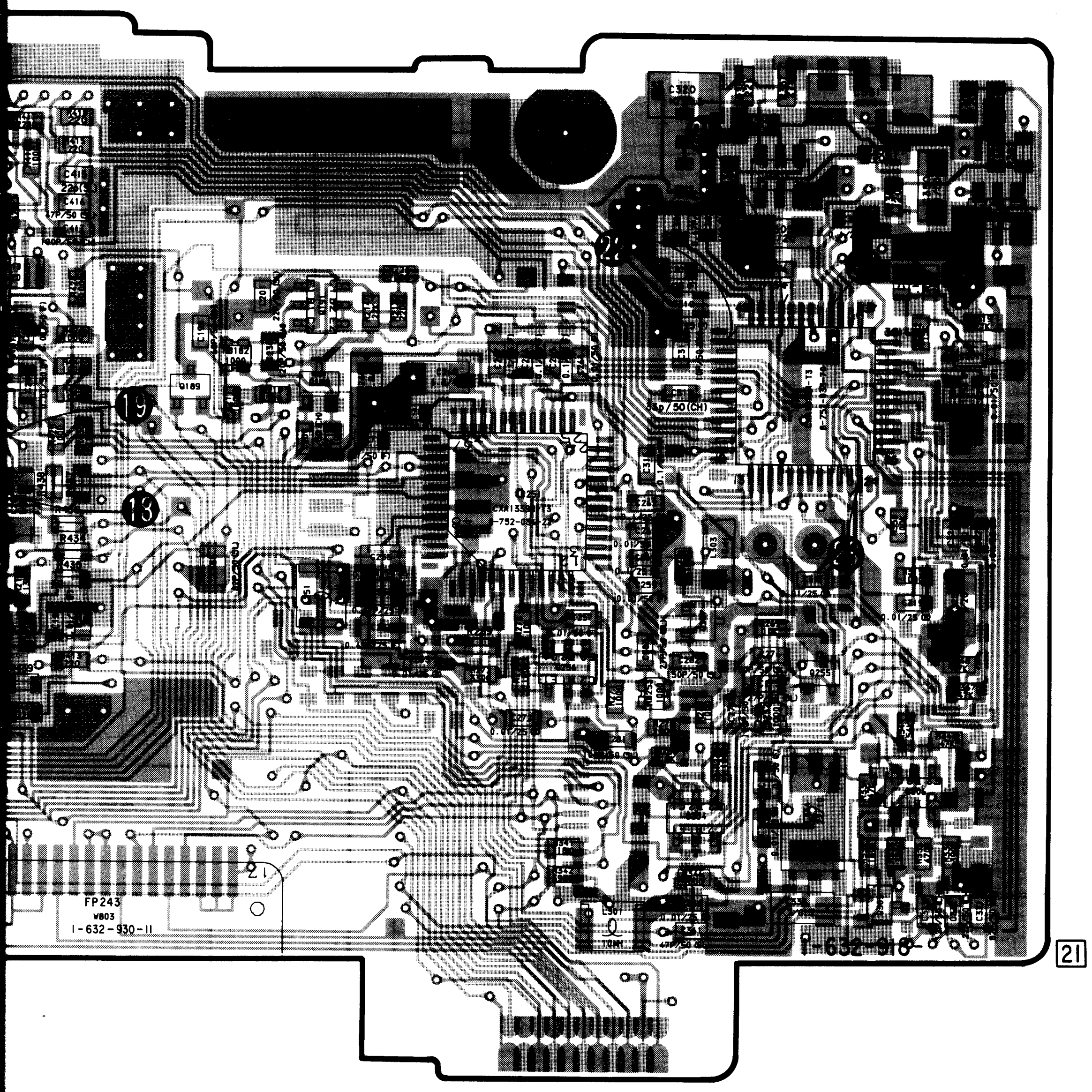


VC-66P BOARD (CONDUCTOR SIDE)

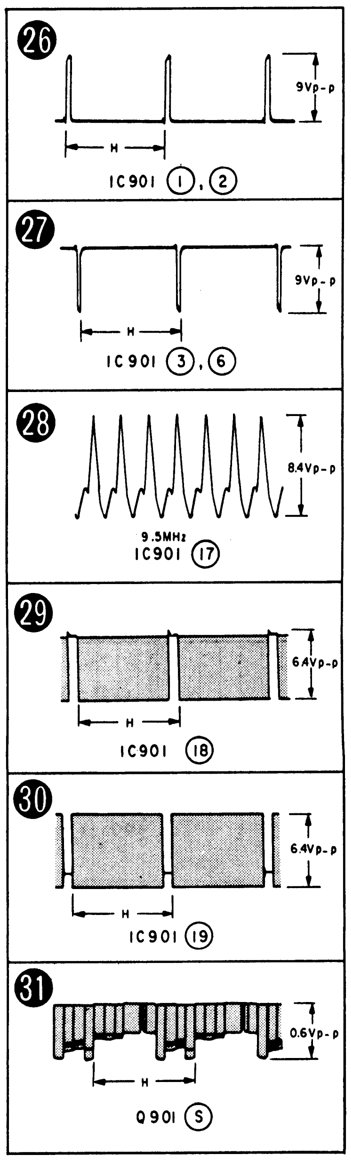

A
B
C
D
E
FP243
1-632-930-11
17

VC-66P BOARD (COMPONENT SIDE)

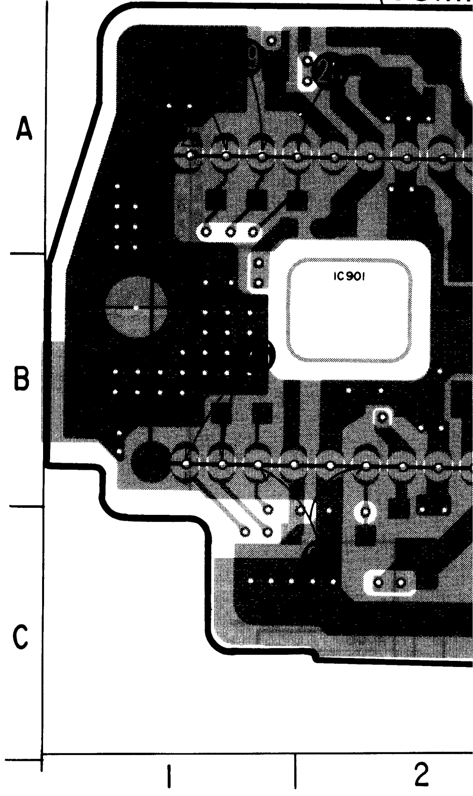

F
G
H
I
J
1
2
3
4
5
DT-74 BOARD

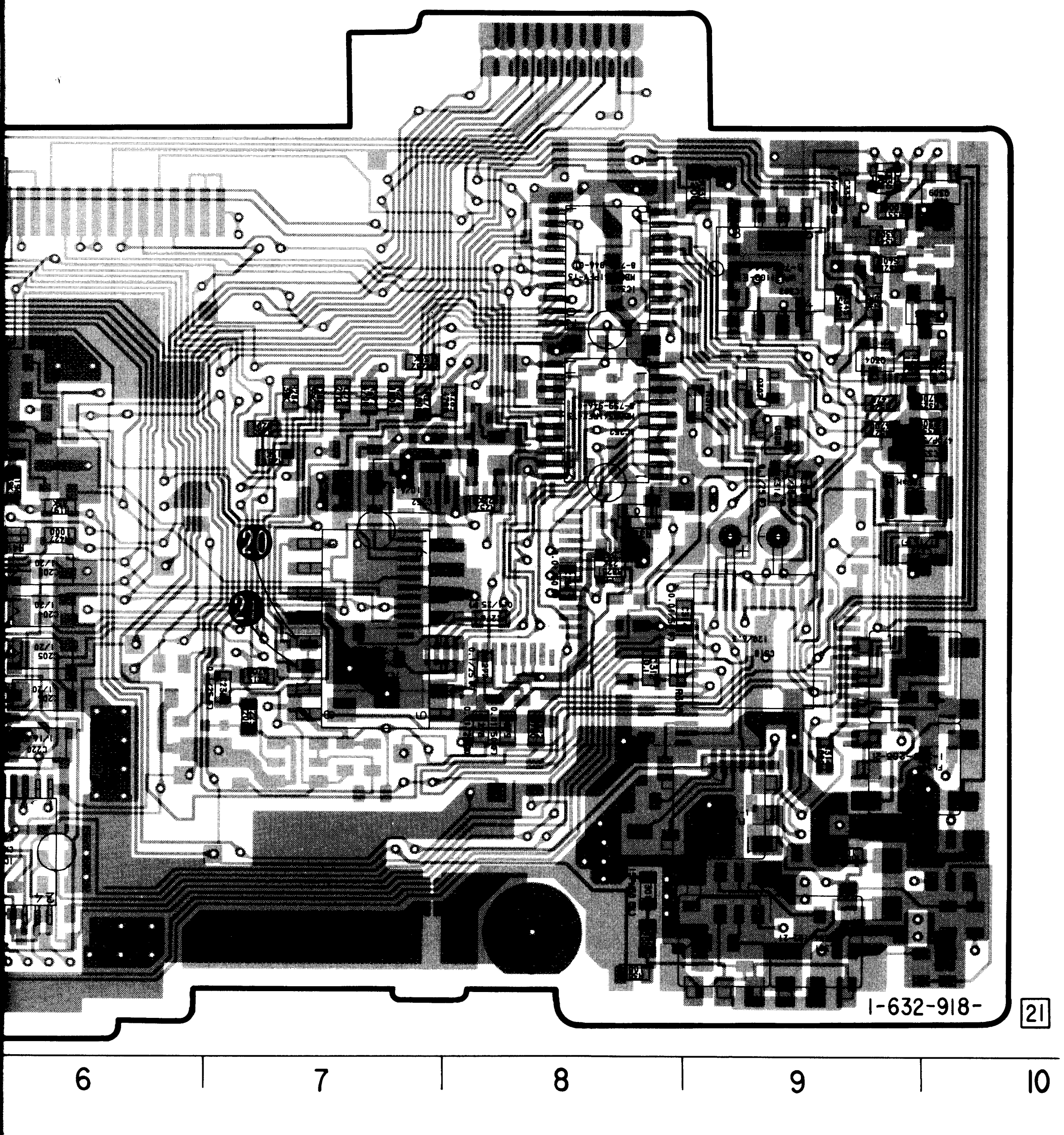

FP243
V803
1-632-930-11
1-632-918-
21
19
13

CD-19P BOARD

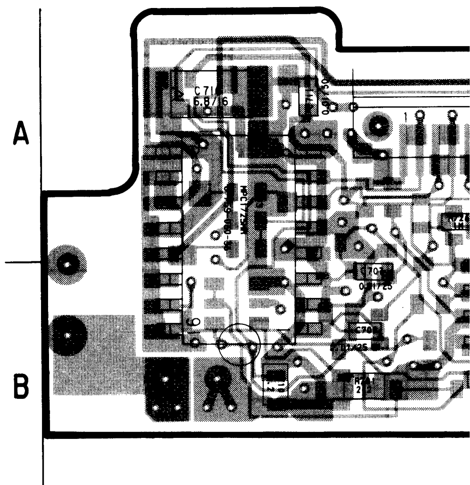


CD-19P BOARD (COM

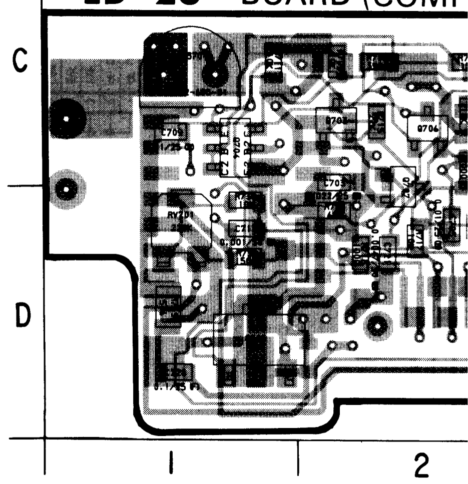

A
B
C
IC901
1
2


1-632-918-
21
20
6
7
8
9
10

LD-20 BOARD (CO

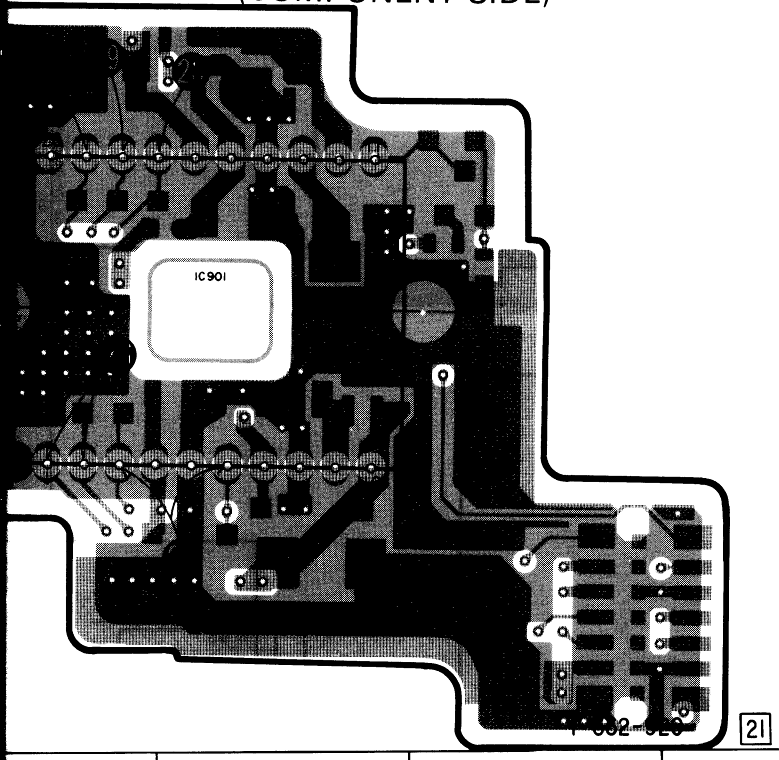


LD-20 BOARD (COMP

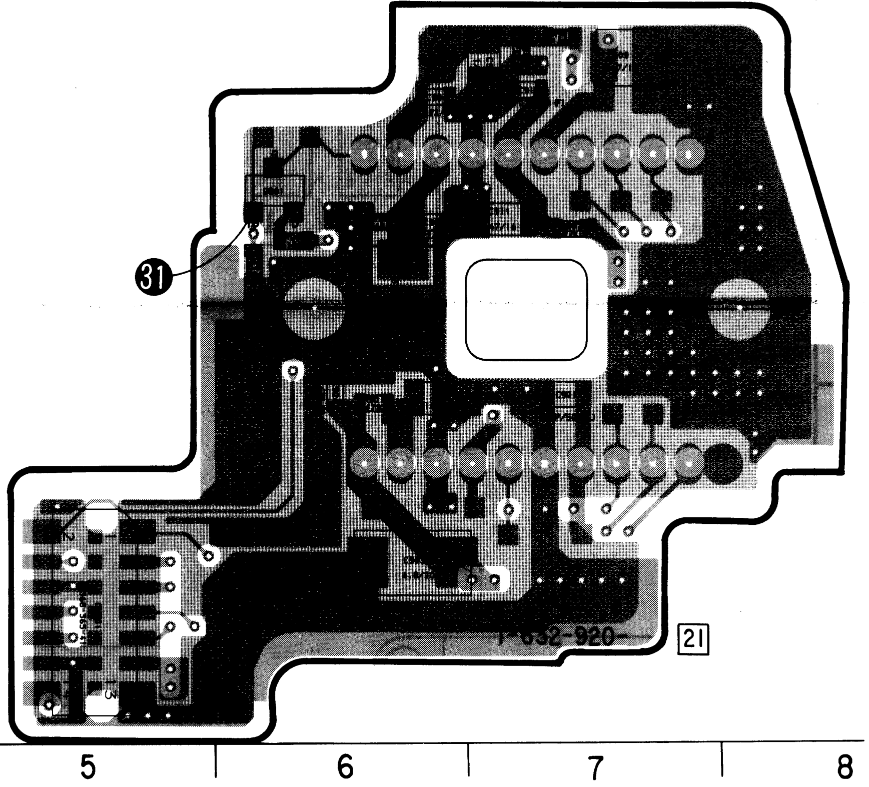


A(1)

-19P BOARD (COMPONENT SIDE)

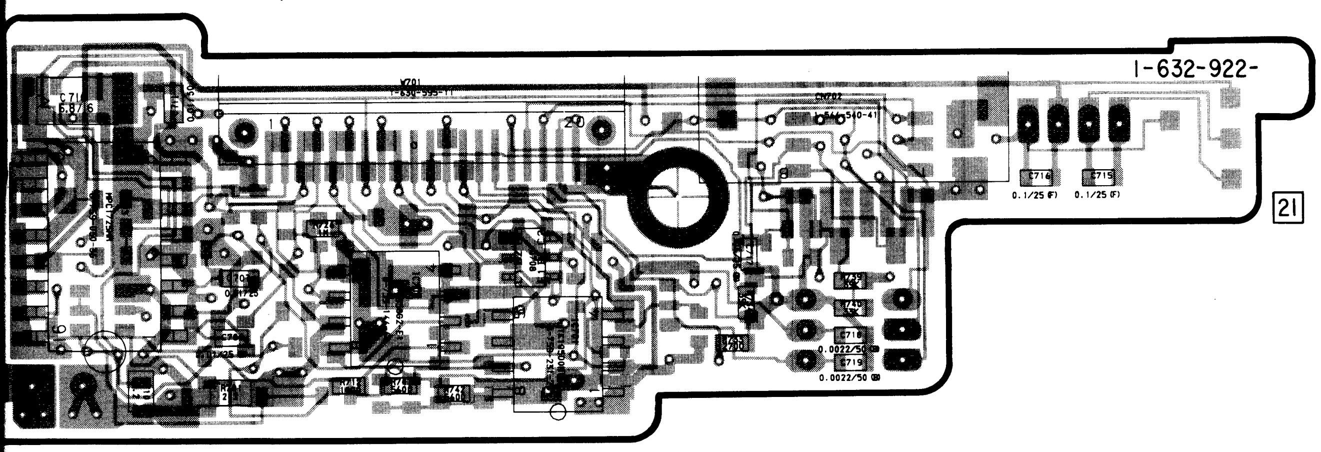

IC901
1-632-920-
21

CD-19P BOARD (CONDUCTOR SIDE)

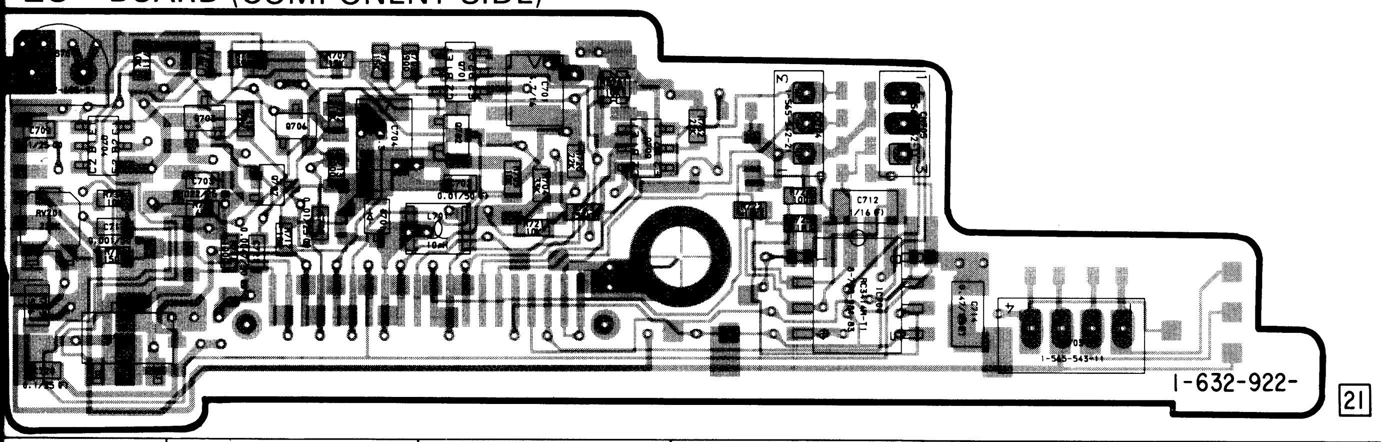

㉛
1-632-920-
21

1 2 3 4 5 6 7 8

LD-20 BOARD (CONDUCTOR SIDE)


1-632-922-
21
C714
0.1/25(F)
C715
0.1/25(F)
C718
0.0022/50
C719
0.0022/50

-20 BOARD (COMPONENT SIDE)


C712
/16
1-632-922-
21

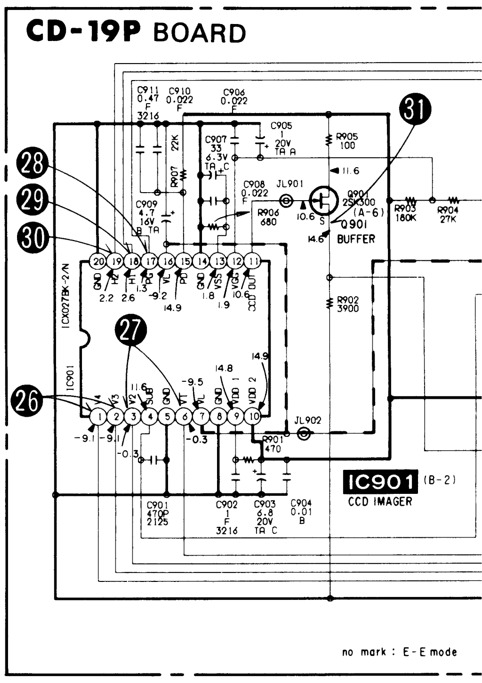
1 2 3 4 5 6

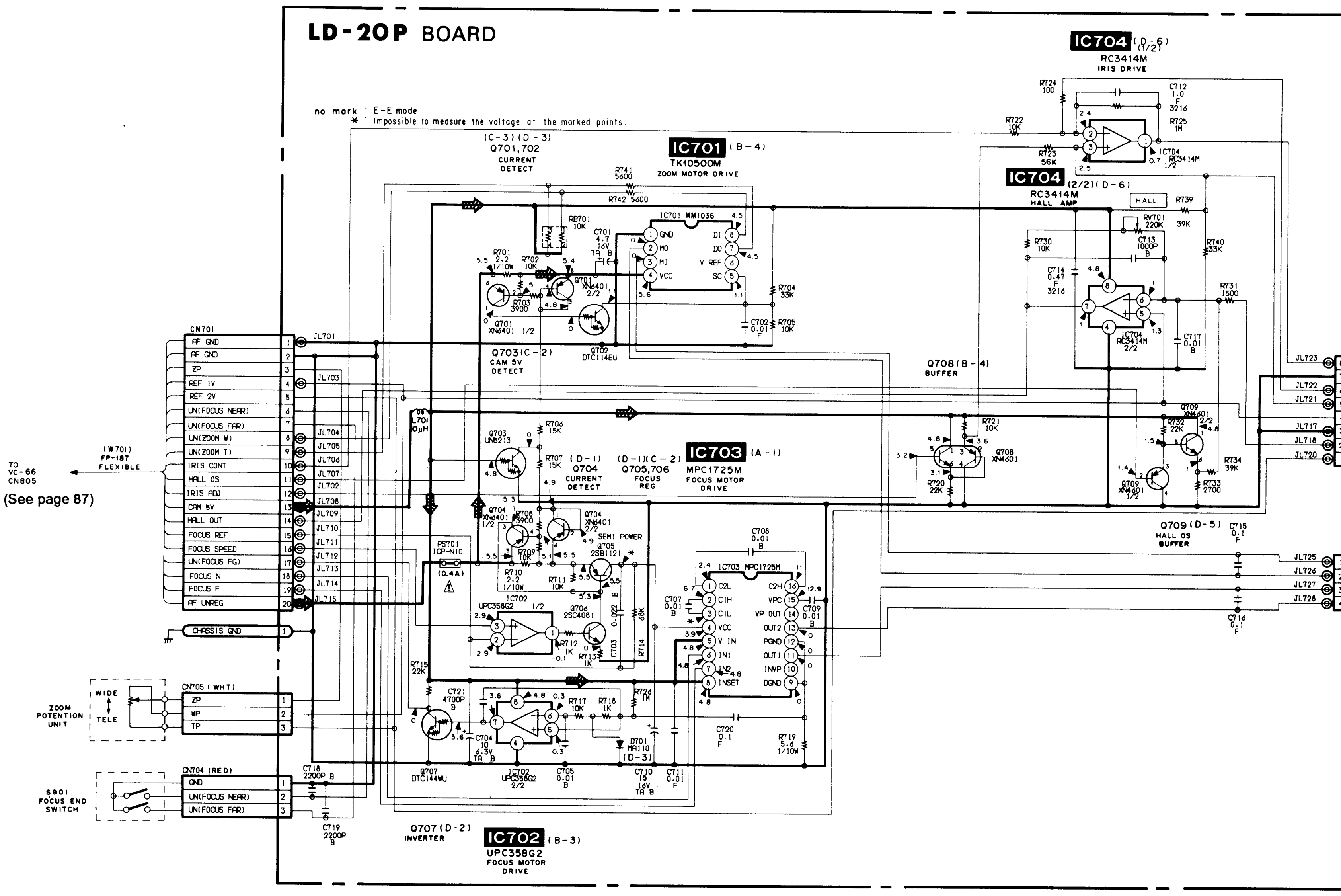
VC-66P (CAMERA PROCESS), CD-19P (CCD IMAGER), LD-20 (IRIS/FOCUS/ZOOM MOTOR DRIVE) SCHEMATIC DIAGRAM

– Ref. No.: VC-66P, CD-19P, LD-20P Boards; 1,000 series –

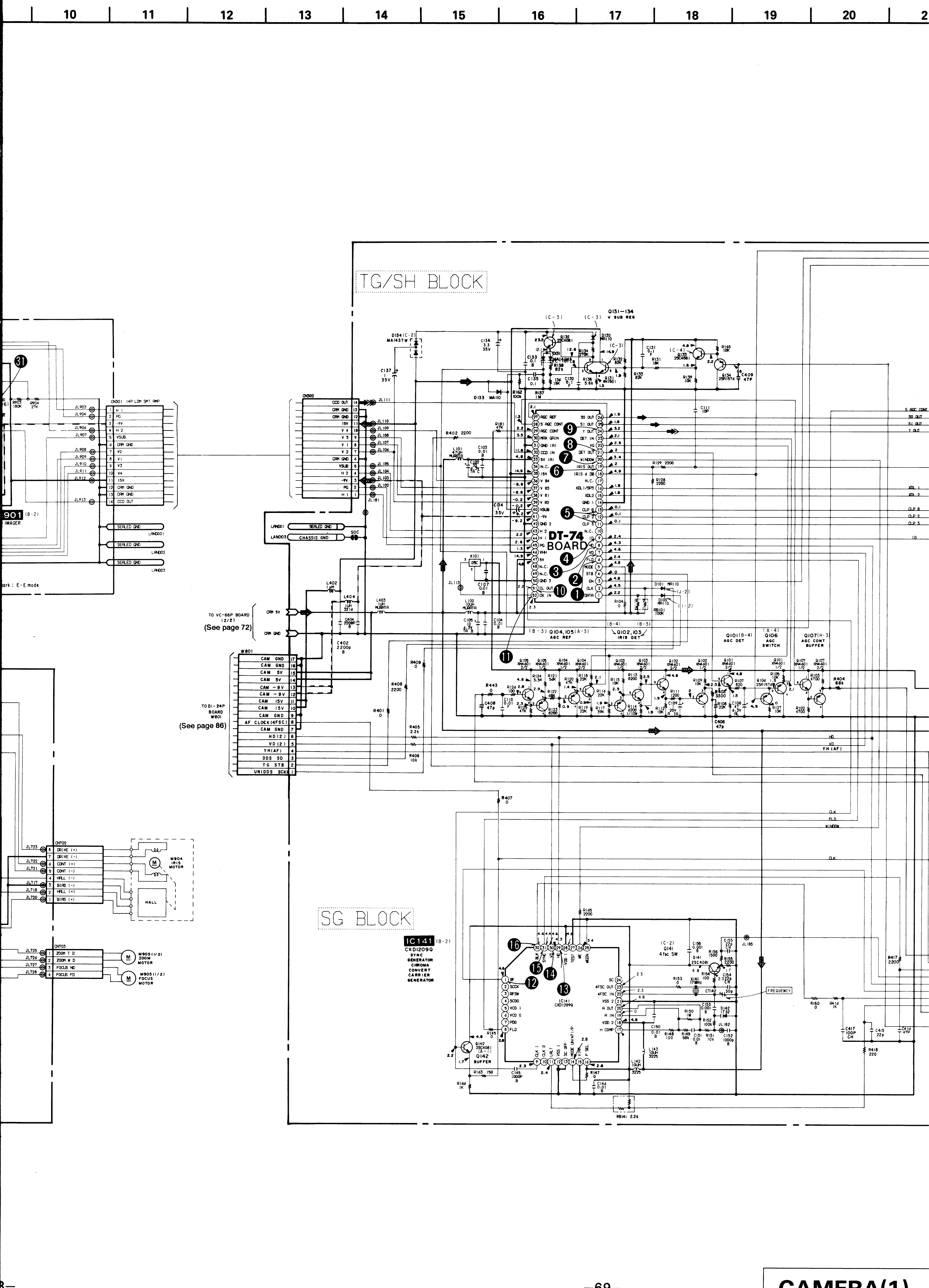
CAUTIONS FOR REPLACING THE CCD IMAGER

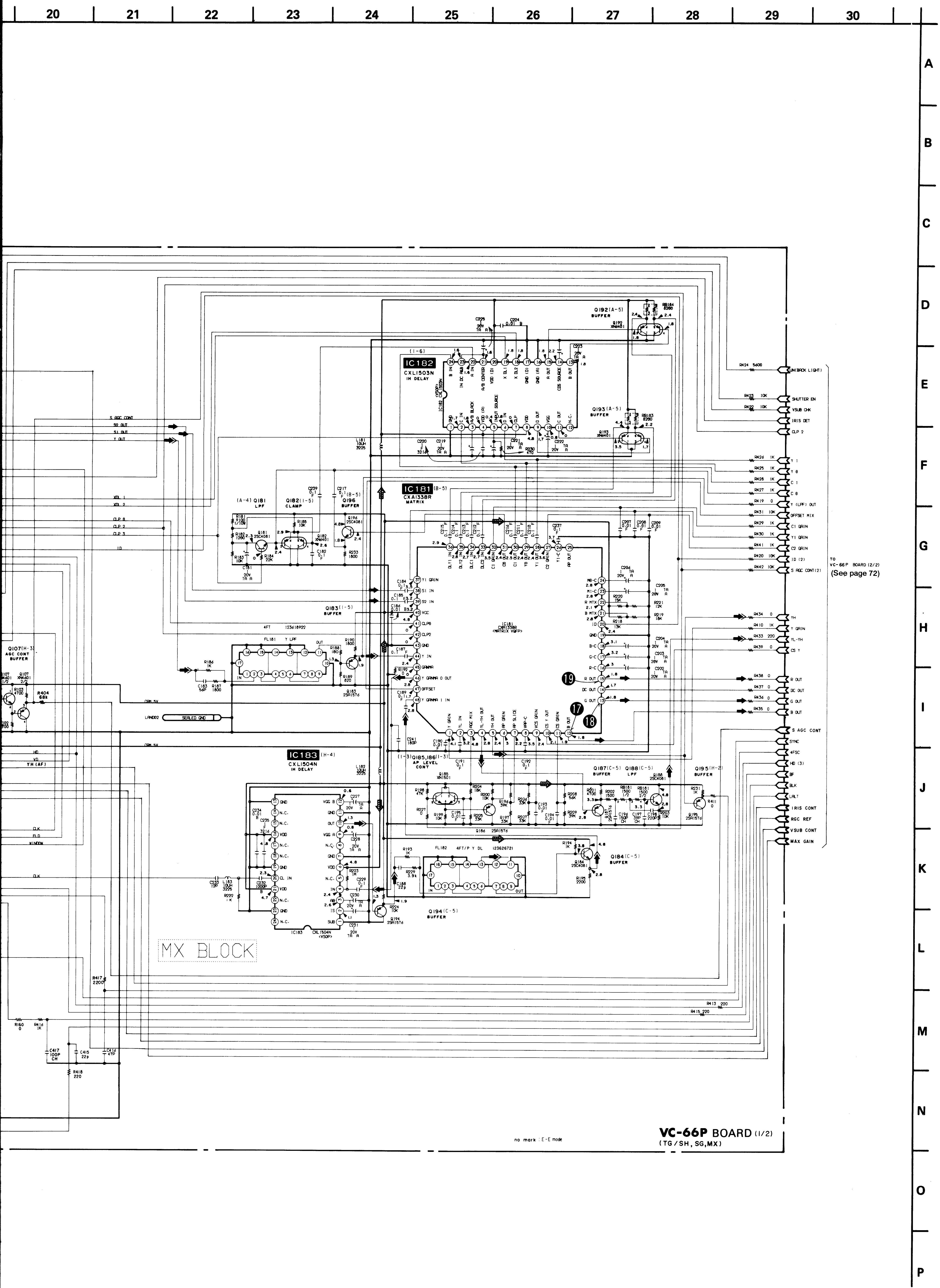
- According to type of CCD imager (IC901 on the CD-19P board), it is necessary to require the compensating ROM (IC003 on the DT-74D board).
  The repairing CCD imager does not require the compensating ROM.
  So when replacing the CCD imager on which the compensating ROM is installed, remove the compensating ROM before replacement.
- Since the mounted CD-19P and DT-74D borads which are supplied as repair parts are not installed IC901 and IC003 respectively, replace the respective ICs from the previous board to the new when replacing each board.
- When you replaced the CCD imager, perform the overall camera head adjustment.
- CCD imager has such a structure that it may be spoiled by static electricity, so handle it with a care similar for MOS IC. Further, be sure that the light receiving part has no stick of dust and no entry of bright light.


CD-19P BOARD
IC901 (B-2)
CCD IMAGER
Q901 BUFFER
2SC300
no mark : E-E mode


LD-20P BOARD
no mark : E-E mode
* : Impossible to measure the voltage at the marked points.
Q701,702 CURRENT DETECT
IC701 (B-4) TK10500M ZOOM MOTOR DRIVE
IC704 (D-6) (1/2) RC3414M IRIS DRIVE
IC704 (2/2) (D-6) RC3414M HALL AMP
Q703 (C-2) CAM 5V DETECT
Q708 (B-4) BUFFER
IC703 (A-1) MPC1725M FOCUS MOTOR DRIVE
Q704 CURRENT DETECT
Q705,706 FOCUS REG
Q709 (D-5) HALL OS BUFFER
Q707 (D-2) INVERTER
IC702 (B-3) UPC358G2 FOCUS MOTOR DRIVE
CN701
RF GND
RF GND
ZP
REF 1V
REF 2V
UN (FOCUS NEAR)
UN (FOCUS FAR)
UN (ZOOM W)
UN (ZOOM T)
IRIS CONT
HALL OS
IRIS ADJ
CAM 5V
HALL OUT
FOCUS REF
FOCUS SPEED
UN (FOCUS FG)
FOCUS N
FOCUS F
RF UNREG
CHASSIS GND
TO VC-66 CN805
(W701) FP-187 FLEXIBLE
(See page 87)
CN705 (WHT)
ZP
WP
TP
WIDE
TELE
ZOOM POTENTION UNIT
CN704 (RED)
GND
UN (FOCUS NEAR)
UN (FOCUS FAR)
S901 FOCUS END SWITCH
PS701 ICP-N10 (0.4A)

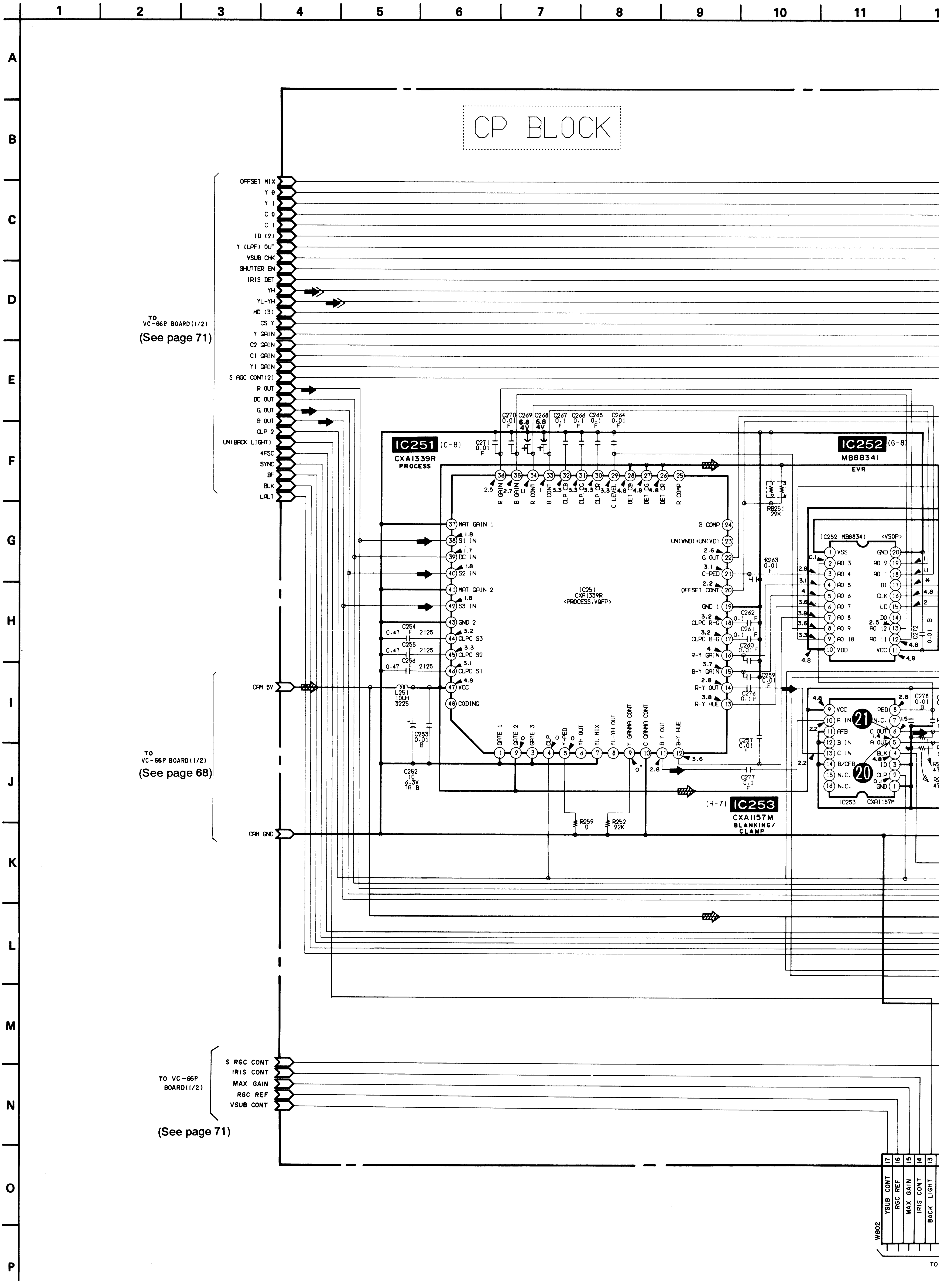
- ➡ : REC CHROMA Signal
- ⇨ : REC Y Signal
- ⇛ : REC Y/CHROMA Signal

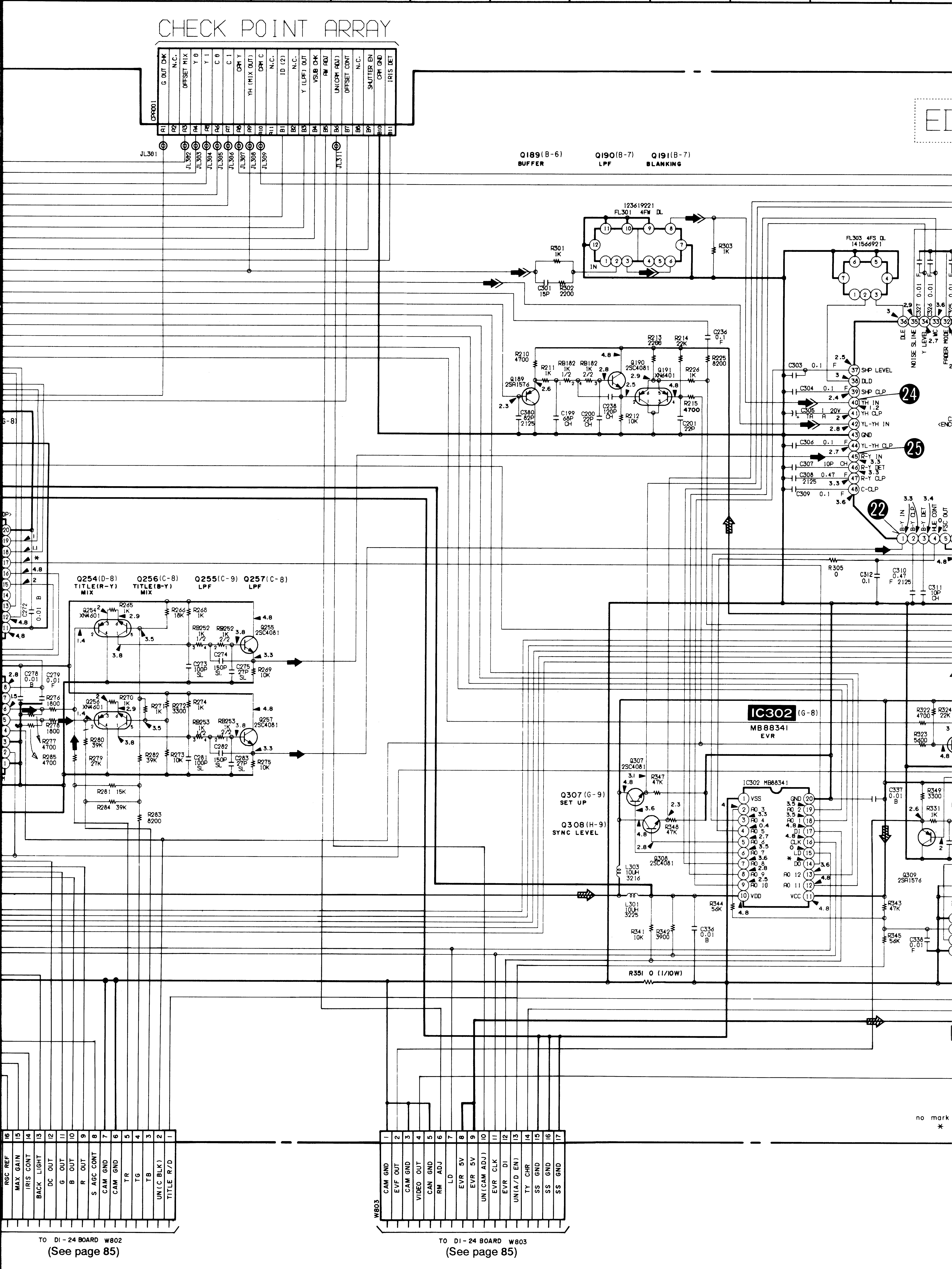

10
11
12
13
14
15
16
17
18
19
20
TG/SH BLOCK
SG BLOCK
DT-74 BOARD
CN301 14P LDM SHT AMP
CN302
901 (B-2)
IMAGER
SEALED GND
CHASSIS GND
LAND001
LAND002
LAND003
Mark : E-E mode
TO VC-66P BOARD (2/2)
(See page 72)
CAM 5V
CAM GND
TO DI-24P BOARD W801
(See page 86)
W801
CN702
CN703
M904 IRIS MOTOR
HALL
M905 (1/2) ZOOM MOTOR
M905 (1/2) FOCUS MOTOR
Q131-134 V SUB REG
Q104,105 (A-3) AGC REF
Q102,103 IRIS DET
Q101 (B-4) AGC DET
Q106 AGC SWITCH
Q107 (H-3) AGC CONT BUFFER
IC141 (B-2)
CXD1209Q
SYNC GENERATOR CHROMA CONVERT CARRIER GENERATOR
Q141 4fsc SW
Q142 BUFFER
FREQUENCY
X101 OSC
RB141 2.2k

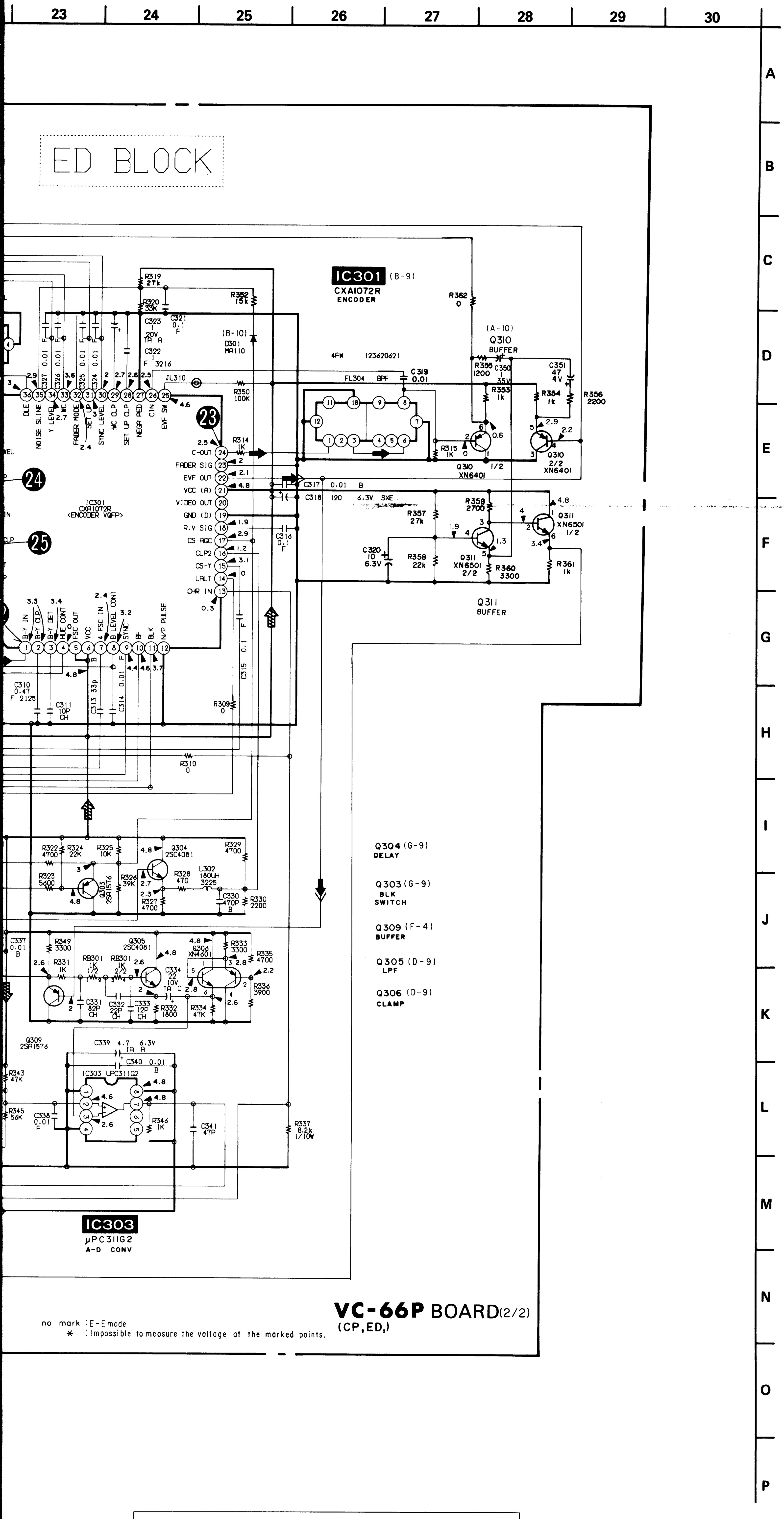

20
21
22
23
24
25
26
27
28
29
30
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
IC182 (1-6)
CXL1503N
1H DELAY
IC181 (B-5)
CXA1338R
MATRIX
IC183 (H-4)
CXL1504N
1H DELAY
Q192 (A-5) BUFFER
Q193 (A-5) BUFFER
(A-4) Q181 LPF
Q182 (I-5) CLAMP
Q196 BUFFER
Q183 (I-5) BUFFER
Q107 (H-3) AGC CONT BUFFER
(I-3) Q185,186 (I-3) AP LEVEL CONT
Q187 (C-5) BUFFER
Q188 (C-5) LPF
Q195 (H-2) BUFFER
Q184 (C-5) BUFFER
Q194 (C-5) BUFFER
FL181 Y LPF
FL182 4FT/P Y DL
S AGC CONT
S2 OUT
S1 OUT
Y OUT
XDL 1
XDL 2
CLP B
CLP 2
CLP 3
ID
SEALED GND
HD
VD
YH (AF)
CLK
FLD
WINDOW
LINK(BACK LIGHT)
SHUTTER EN
VSUB CHK
IRIS DET
CLP 2
Y 1
Y 0
C 1
C 0
Y (LPF) OUT
OFFSET MIX
C1 GAIN
Y1 GAIN
C2 GAIN
ID (2)
S AGC CONT (2)
YH
Y GAIN
YL-YH
CS Y
R OUT
DC OUT
G OUT
B OUT
S AGC CONT
SYNC
4FSC
HD (3)
BF
BLK
LALT
IRIS CONT
AGC REF
VSUB CONT
MAX GAIN
TO VC-66P BOARD (2/2)
(See page 72)
⑰
⑱
⑲
MX BLOCK

no mark : E-E mode

VC-66P BOARD (1/2)
(TG/SH, SG,MX)


CP BLOCK
OFFSET MIX
Y 0
Y 1
C 0
C 1
ID (2)
Y (LPF) OUT
VSUB CHK
SHUTTER EN
IRIS DET
YH
YL-YH
HD (3)
CS Y
Y GAIN
C2 GAIN
C1 GAIN
Y1 GAIN
S AGC CONT(2)
R OUT
DC OUT
G OUT
B OUT
CLP 2
UN(BACK LIGHT)
4FSC
SYNC
BF
BLK
LALT
TO VC-66P BOARD(1/2)
(See page 71)
CAM 5V
CAM GND
TO VC-66P BOARD(1/2)
(See page 68)
S AGC CONT
IRIS CONT
MAX GAIN
AGC REF
VSUB CONT
TO VC-66P BOARD(1/2)
(See page 71)
IC251 (C-8)
CXA1339R
PROCESS
IC251
CXA1339R
<PROCESS.VQFP>
MAT GAIN 1
S1 IN
DC IN
S2 IN
MAT GAIN 2
S3 IN
GND 2
CLPC S3
CLPC S2
CLPC S1
VCC
CODING
B COMP
UN(WND)+UN(VD)
G OUT
C-PED
OFFSET CONT
GND 1
CLPC R-G
CLPC B-G
R-Y GAIN
B-Y GAIN
R-Y OUT
R-Y HUE
R GAIN
B GAIN
R CONT
B CONT
CLP CB
CLP CG
CLP CR
C LEVEL
DET CB
DET CG
DET CR
R COMP
GATE 1
GATE 2
GATE 3
CLP
Y-PED
YH OUT
YL MIX
YL-YH OUT
Y GAMMA CONT
C GAMMA CONT
B-Y OUT
B-Y HUE
IC252 (G-8)
MB88341
EVR
IC252 MB88341 <VSOP>
VSS
AO 3
AO 4
AO 5
AO 6
AO 7
AO 8
AO 9
AO 10
VDD
GND
AO 2
AO 1
DI
CLK
LD
DO
AO 12
AO 11
VCC
IC253 (H-7)
CXA1157M
BLANKING/CLAMP
IC253 CXA1157M
VCC
A IN
AFB
B IN
C IN
B/CFB
N.C.
PED
C OUT
A OUT
BLK
ID
CLP
GND
C270 0.01 F
C269 6.8 4V
C268 6.8 4V
C267 0.1 F
C266 0.1 F
C265 0.1 F
C264 0.01 F
C271 0.01 F
RB251 22K
C263 0.01 F
C262 0.1 F
C261 0.1 F
C260 0.01 F
C259 0.01 F
C276 0.1 F
C257 0.01 F
C277 0.1 F
C278 0.01 B
C272 0.01 B
C254 0.47 F 2125
C255 0.47 F 2125
C256 0.47 F 2125
L251 10UH 3225
C253 0.01 B
C252 10 6.3V TA B
R259 0
R252 22K
W802
YSUB CONT
AGC REF
MAX GAIN
IRIS CONT
BACK LIGHT
17
16
15
14
13
21
20


CHECK POINT ARRAY
CPA001
G OUT CHK
N.C.
OFFSET MIX
Y 0
Y 1
C 0
C 1
CAM Y
YH (MIX OUT)
CAM C
N.C.
ID (2)
N.C.
Y (LPF) OUT
VSUB CHK
AW ADJ
UN(CAM ADJ)
OFFSET CONT
N.C.
SHUTTER EN
CAM GND
IRIS DET
JL301
JL302
JL303
JL304
JL305
JL306
JL307
JL308
JL309
JL311
Q189(B-6) BUFFER
Q190(B-7) LPF
Q191(B-7) BLANKING
FL301 4FW DL
FL303 4FS DL
IC302 (G-8)
MB88341
EVR
Q254(D-8) TITLE(R-Y) MIX
Q256(C-8) TITLE(B-Y) MIX
Q255(C-9) LPF
Q257(C-8) LPF
Q307(G-9) SET UP
Q308(H-9) SYNC LEVEL
SHP LEVEL
DLD
SHP CLP
YH IN
YH CLP
YL-YH IN
GND
YL-YH CLP
R-Y IN
R-Y DET
R-Y CLP
C-CLP
B-Y IN
B-Y CLP
B-Y DET
HLE CONT
FSC OUT
DLE
NOISE SLINE
Y LEVEL
FADER MODE
R351 0 (1/10W)
no mark
RGC REF
MAX GAIN
IRIS CONT
BACK LIGHT
DC OUT
G OUT
B OUT
R OUT
S AGC CONT
CAM GND
CAM GND
TR
TG
TB
UN(C BLK)
TITLE R/D
TO DI-24 BOARD W802
(See page 85)
W803
CAM GND
EVF OUT
CAM GND
VIDEO OUT
CAN GND
RM ADJ
LD
EVR 5V
EVR 5V
UN(CAM ADJ)
EVR CLK
EVR DI
UN(A/D EN)
TY CHR
SS GND
SS GND
SS GND
TO DI-24 BOARD W803
(See page 85)
RA(2)


ED BLOCK
IC301 (B-9)
CXA1072R
ENCODER
IC301
CXA1072R
<ENCODER VQFP>
Q310 (A-10)
BUFFER
Q310 1/2 XN6401
Q310 2/2 XN6401
Q311 XN6501 1/2
Q311 XN6501 2/2
Q311
BUFFER
D301 MA110 (B-10)
FL304 BPF
JL310
C-OUT
FADER SIG
EVF OUT
VCC (A)
VIDEO OUT
GND (D)
R-Y SIG
CS AGC
CLP2
CS-Y
LALT
CHR IN
B-Y IN
B-Y CLP
B-Y DET
HUE CONT
FSC OUT
VCC
FSC IN
B LEVEL CONT
SYNC
BF
BLK
H/V PULSE
NOISE SLINE
Y LEVEL
FADER MODE
SYNC LEVEL
SET UP CLP
NEGA PED
CIN
EVF SW
Q304 2SC4081
Q303 2SA1576
Q305 2SC4081
Q306 XN4601
Q309 2SA1576
IC303 UPC311G2
IC303
μPC311G2
A-D CONV
Q304 (G-9)
DELAY
Q303 (G-9)
BLK
SWITCH
Q309 (F-4)
BUFFER
Q305 (D-9)
LPF
Q306 (D-9)
CLAMP
㉓
㉔
㉕
23
24
25
26
27
28
29
30
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

no mark : E-Emode
* : Impossible to measure the voltage at the marked points.

VC-66P BOARD(2/2)
(CP,ED,)

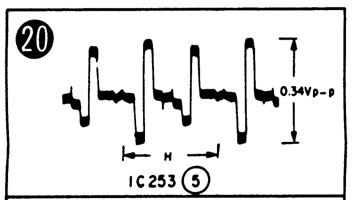
➡ : REC CHROMA Signal
⇨ : REC Y Signal
⇨⇨ : REC Y/CHROMA Signal

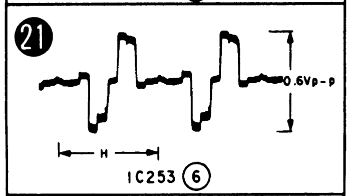
VC-66P (CAMERA PROCESS) PRINTED WIRING BOARD
– Ref. No.: VC-66P Board; 1,000 series –

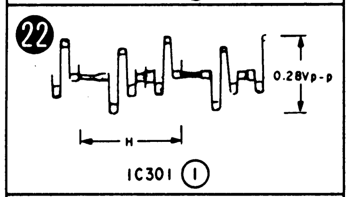
- VC-66P board has four layers structure but inner two layers' patterns are omitted.

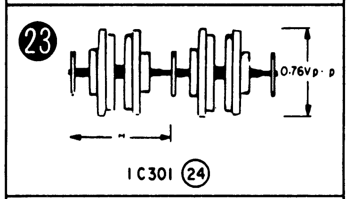
Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

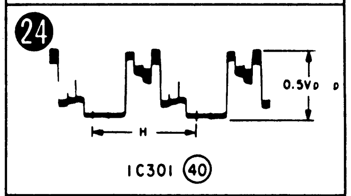
VC-66P BOARD (CP, ED, EVR)

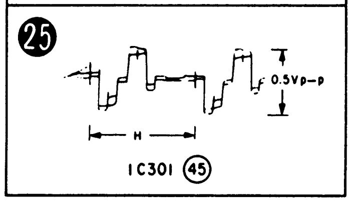




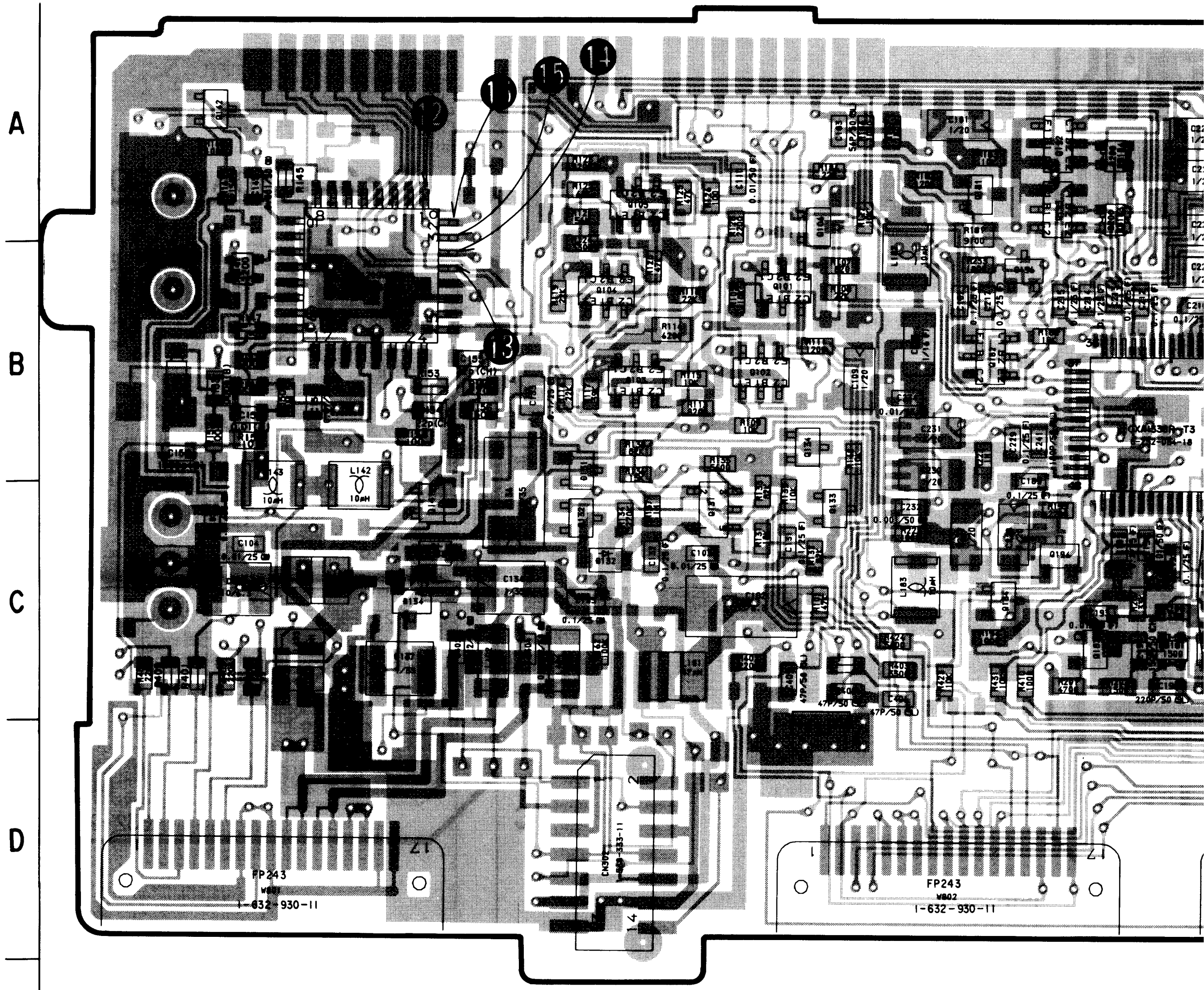




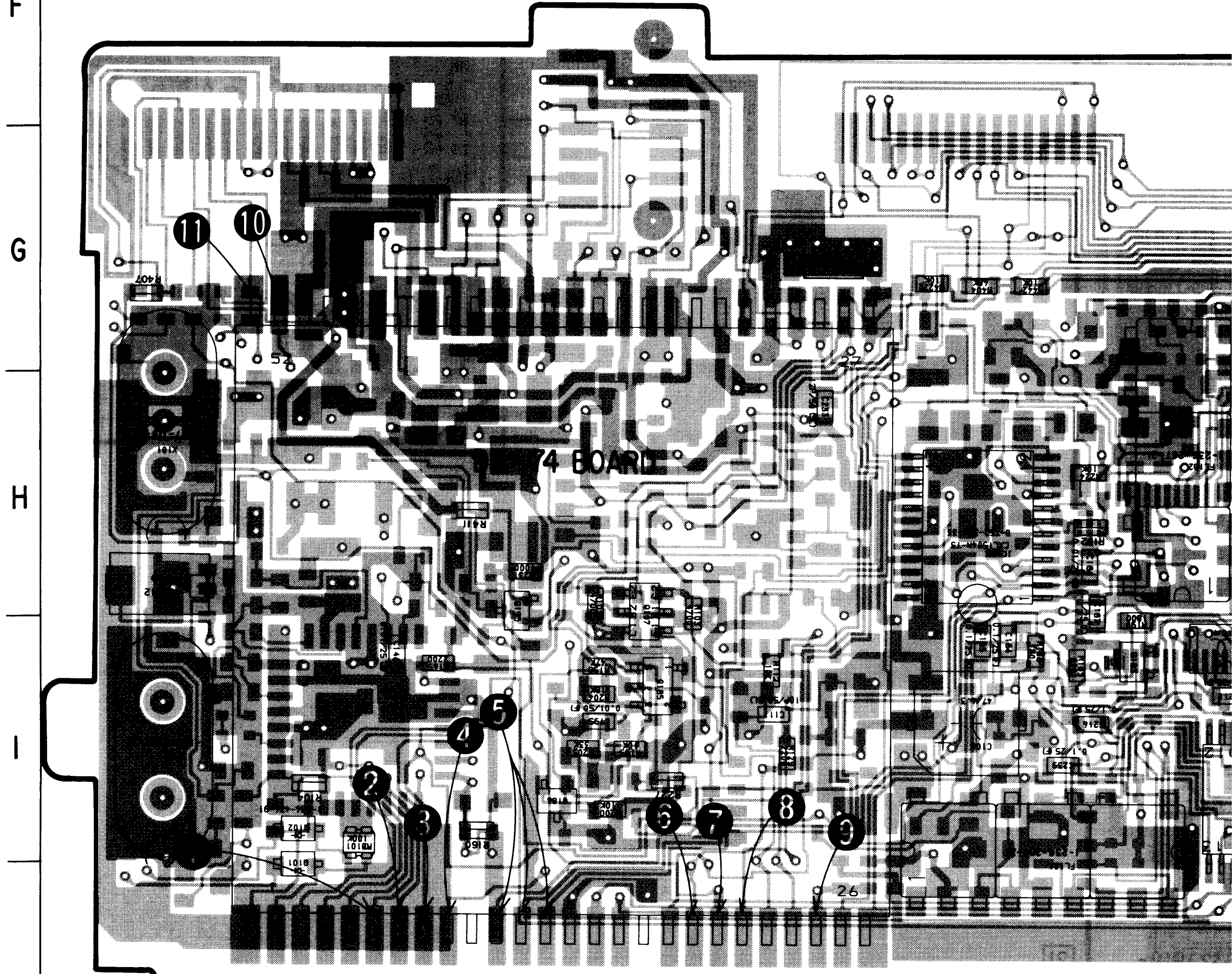


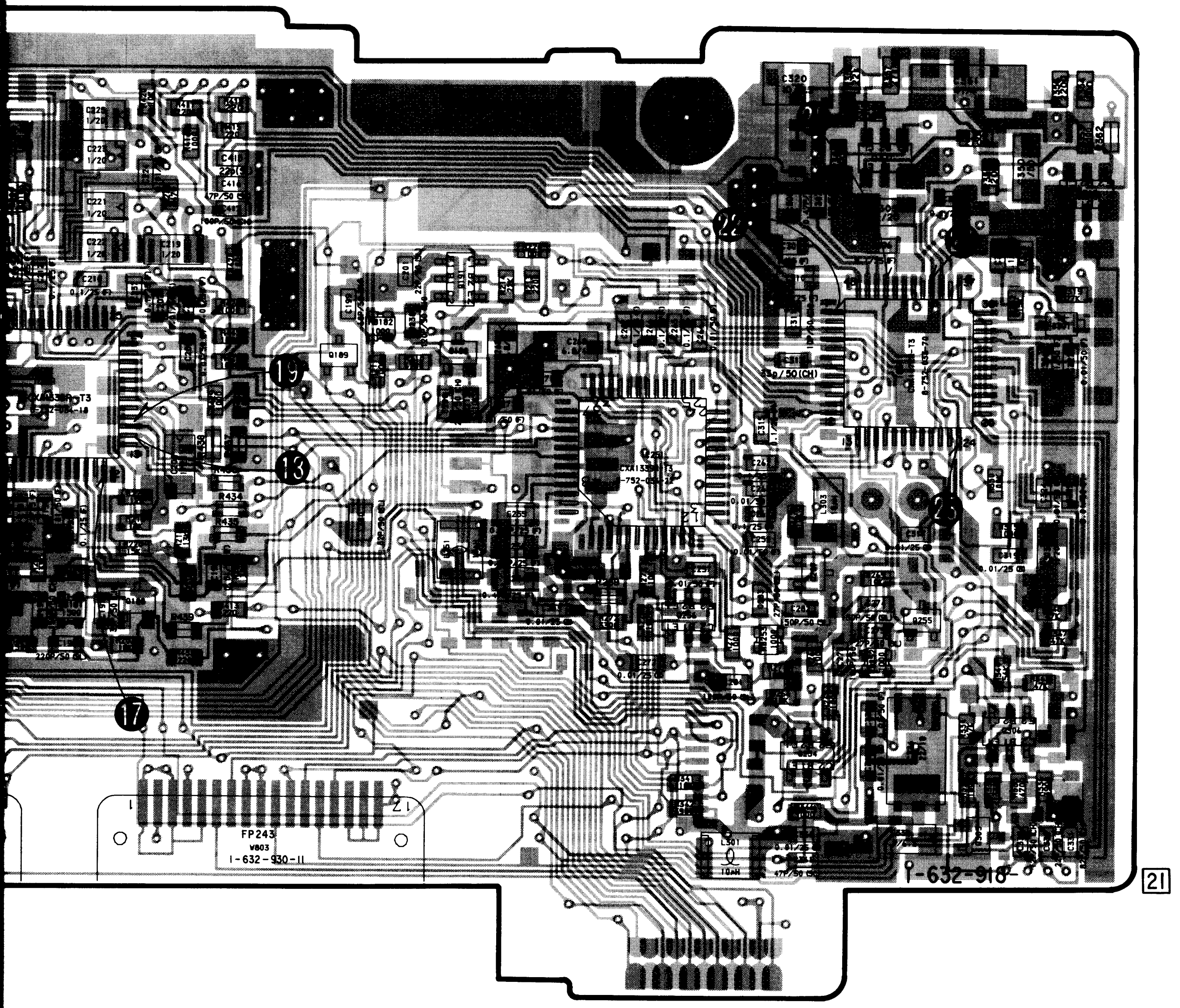


VC-66P BOARD (CONDUCTOR SIDE)

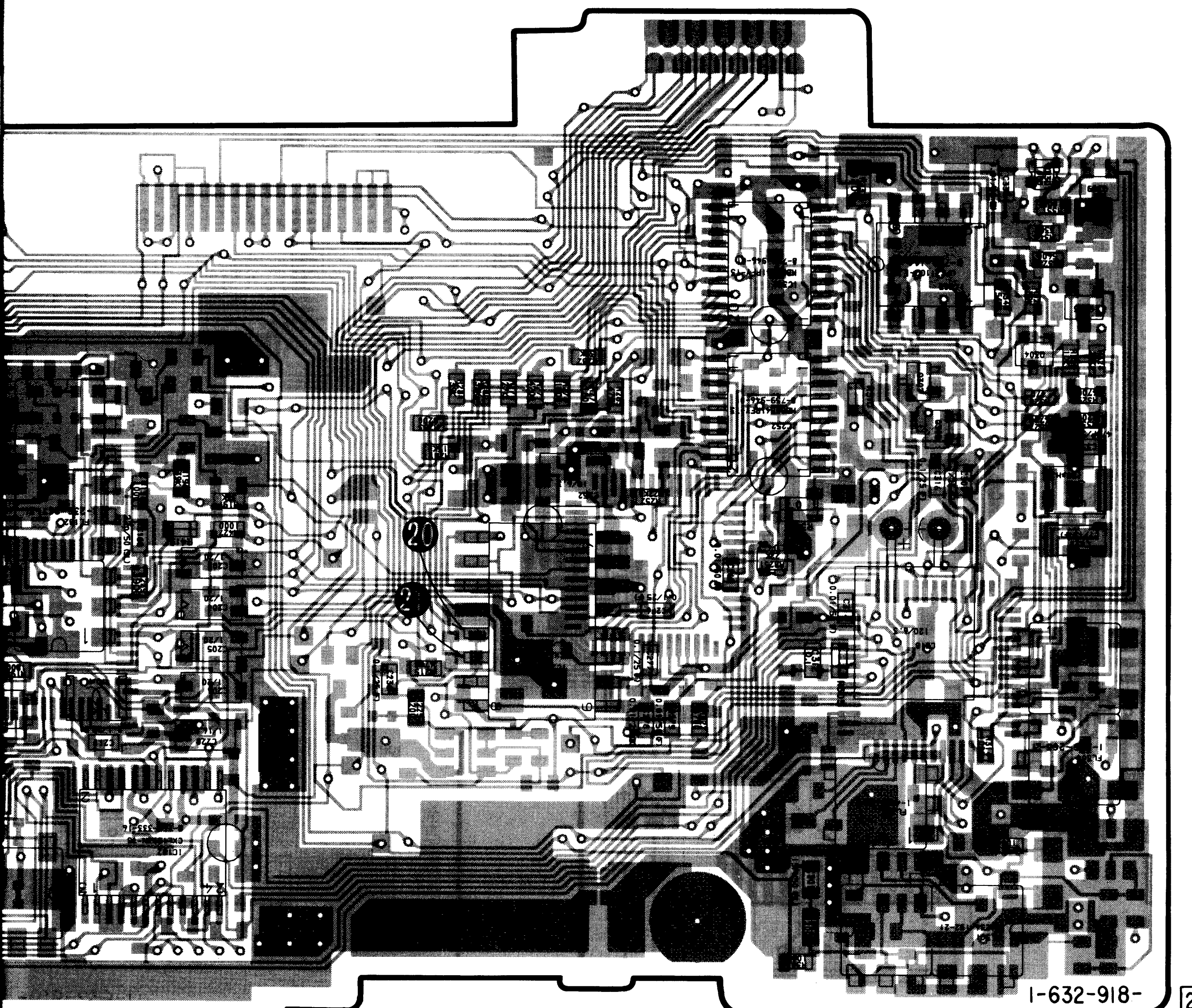

A
B
C
D
⑫
⑪
⑮
⑭
⑬
L143
L142
FP243
1-632-930-11
FP243
1-632-930-11

VC-66P BOARD (COMPONENT SIDE)


E
F
G
H
I
J
⑪
⑩
4 BOARD
②
③
④
⑤
⑥
⑦
⑧
⑨
1
2
3
4
5



FP243
V803
1-632-930-11
1-632-918-

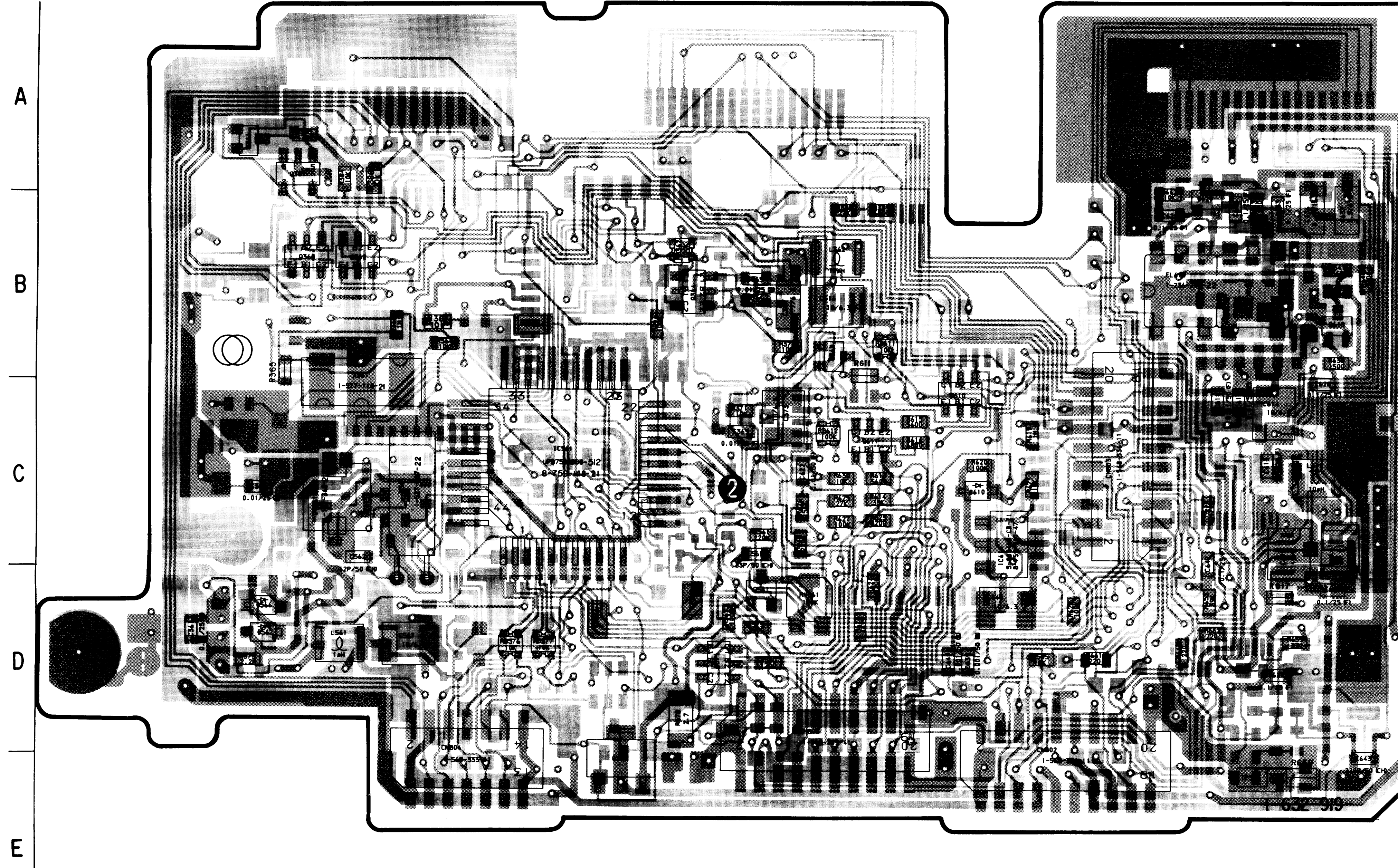


1-632-918-

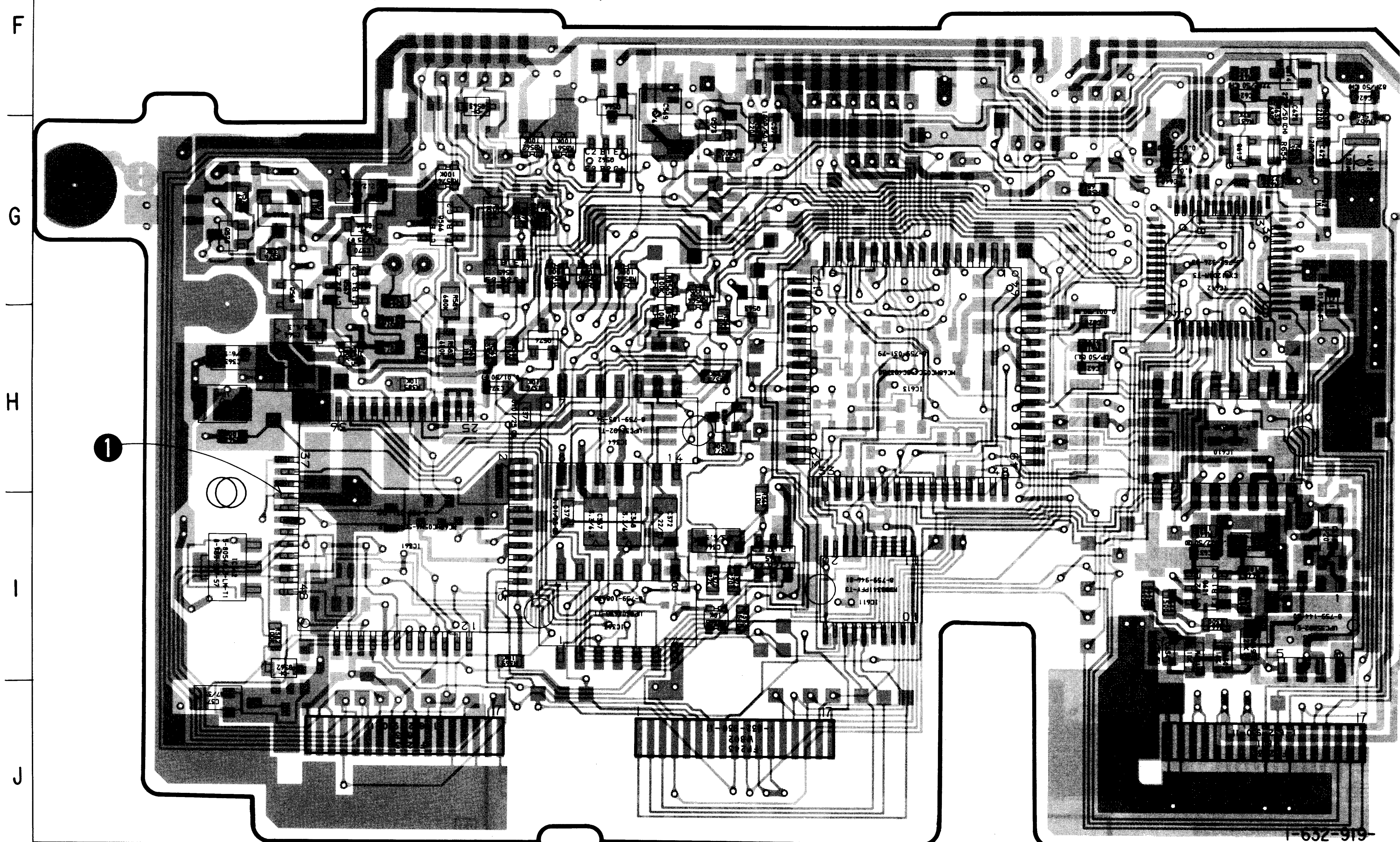
DI-24P (AUTO FOCUS/DIGITAL TITLER), TI-20P (DIGITAL TITLER) PRINTED WIRING BOARDS

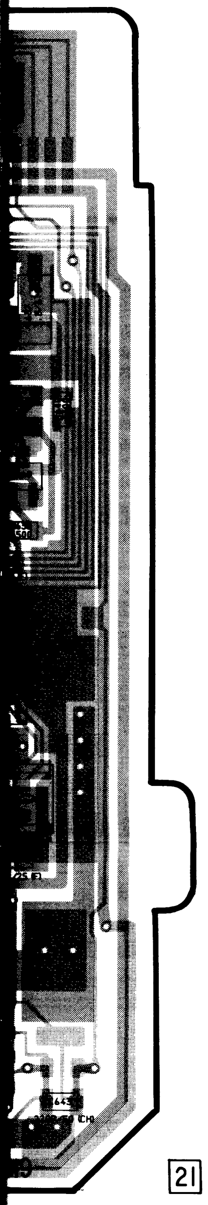
– Ref. No.: DI-24P, TI-20P Boards; 1,000 series –

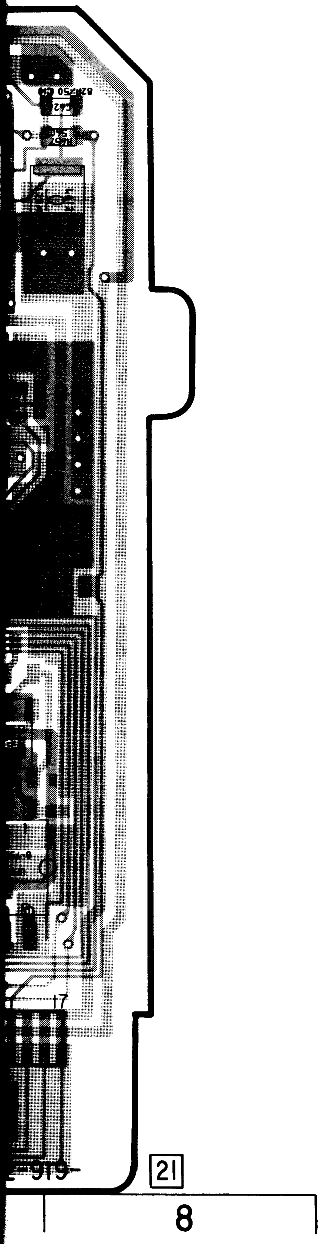
DI-24P BOARD (COMPONENT SIDE)


A
B
C
D
E
❷
1-632-919-

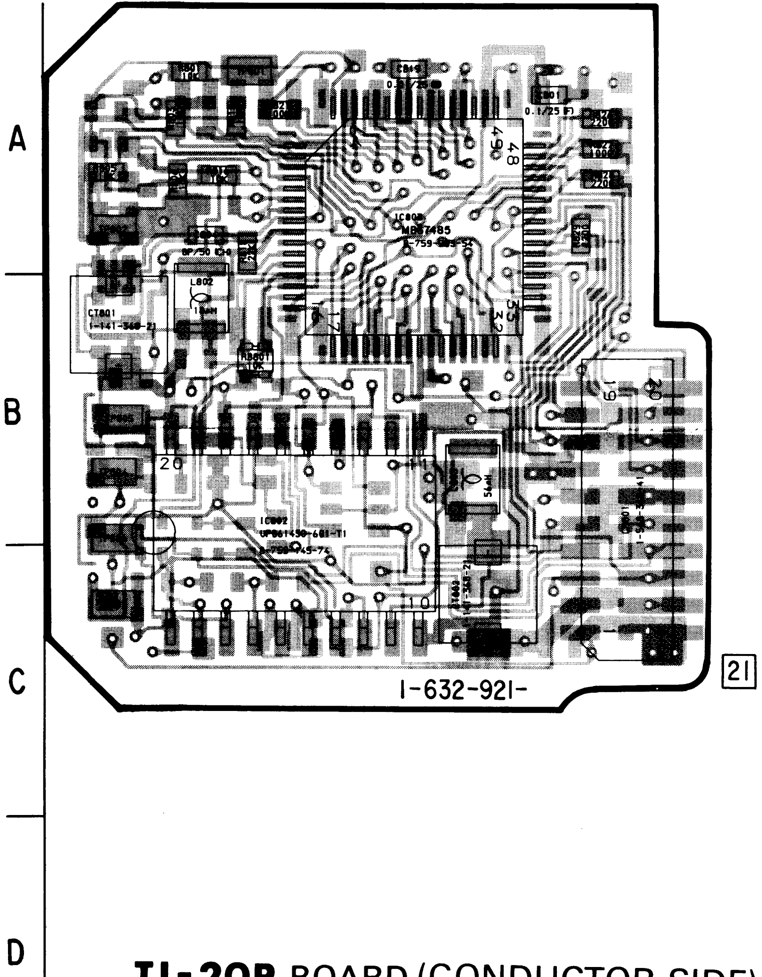
DI-24P BOARD (CONDUCTOR SIDE)


F
G
H
I
J
❶
1-632-919-
1
2
3
4
5
6
7

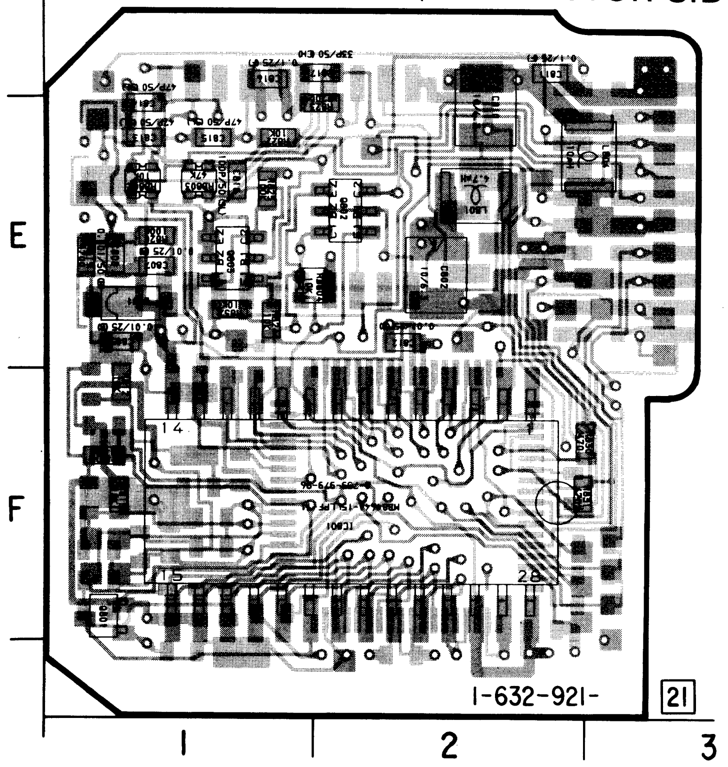




TI-20P BOARD (COMPONENT SIDE)


A
B
C
D
IC801
CT801
L802
20
10
48
49
33
32
1-632-921-
21

TI-20P BOARD (CONDUCTOR SIDE)

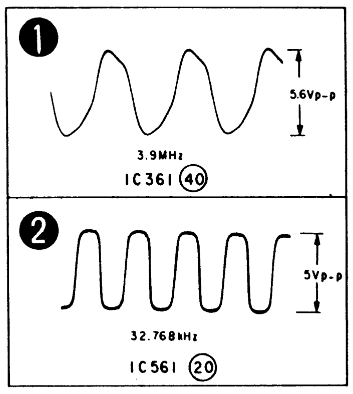

E
F
14
15
28
IC831
1-632-921-
21
1
2
3

- DI-24P and TI-20P boards have four layers structure but inner two layers' patterns are omitted.

Caution:

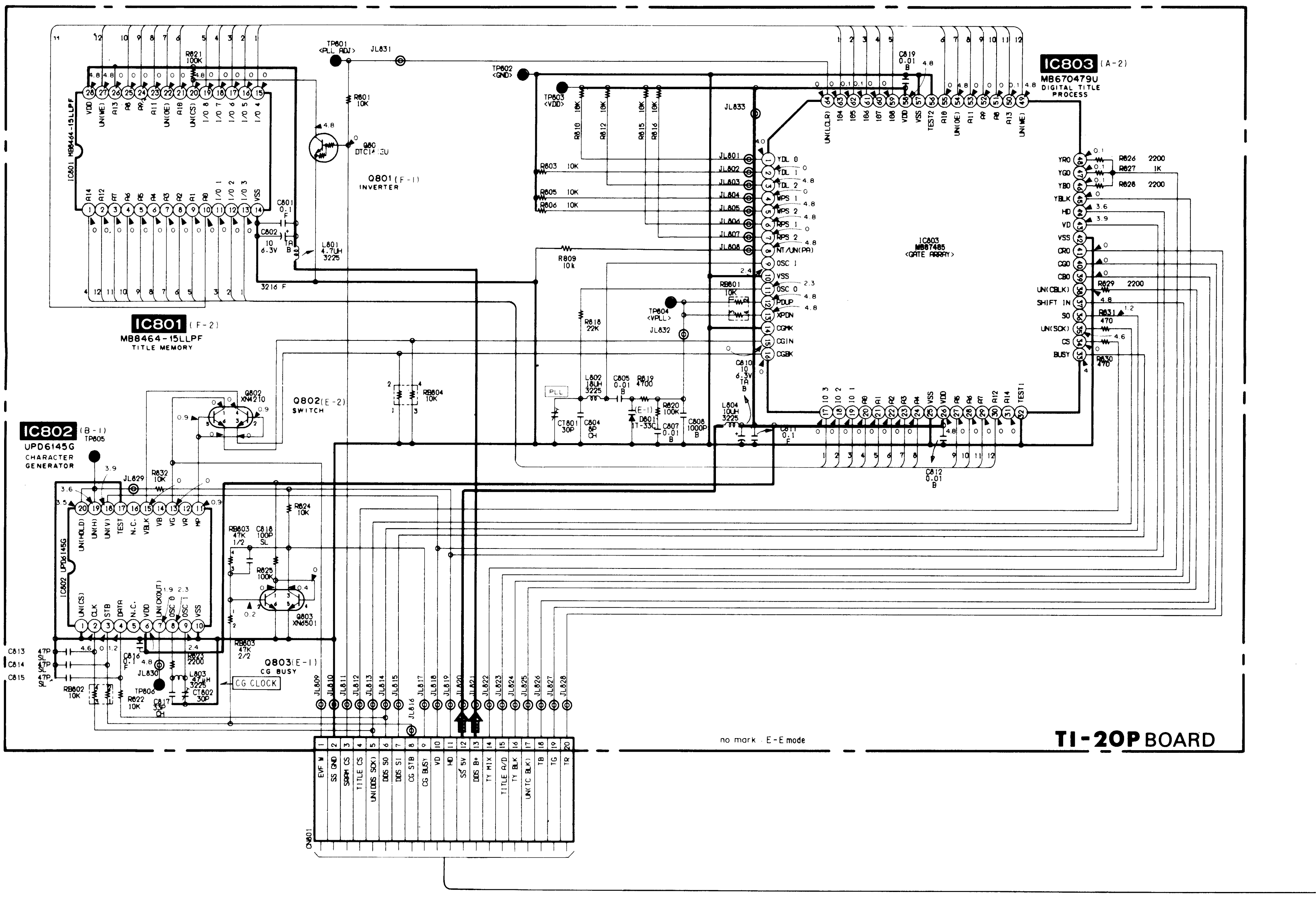
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the pattern face are indicated.

DI-24P BOARD


❶
5.6Vp-p
3.9MHz
IC361 ㊵
❷
5Vp-p
32.768kHz
IC561 ⑳

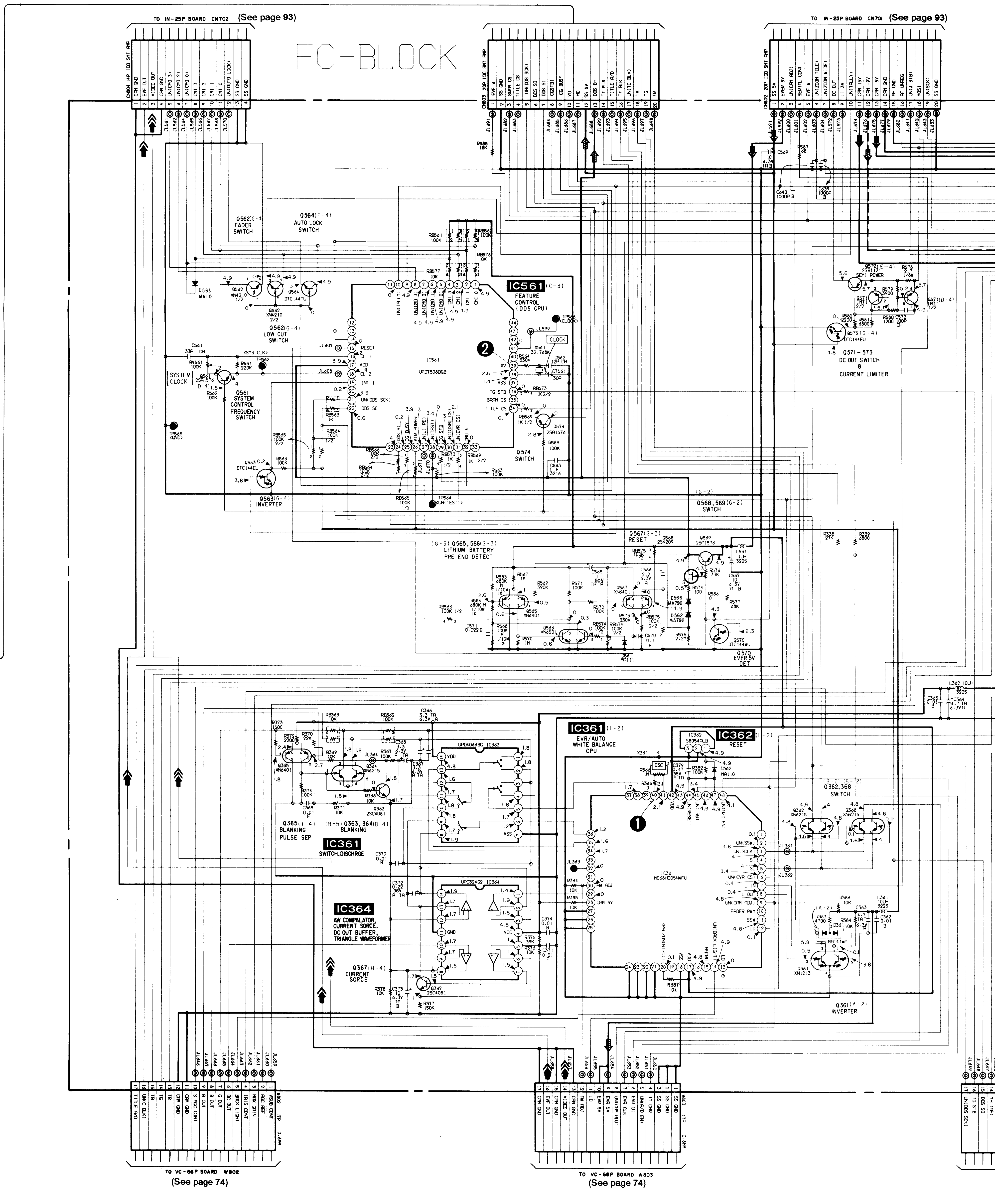
DI-24P (AUTO FOCUS/DIGITAL TITLER), TI-20P (DIGITAL TITLER) SCHEMATIC DIAGRAM

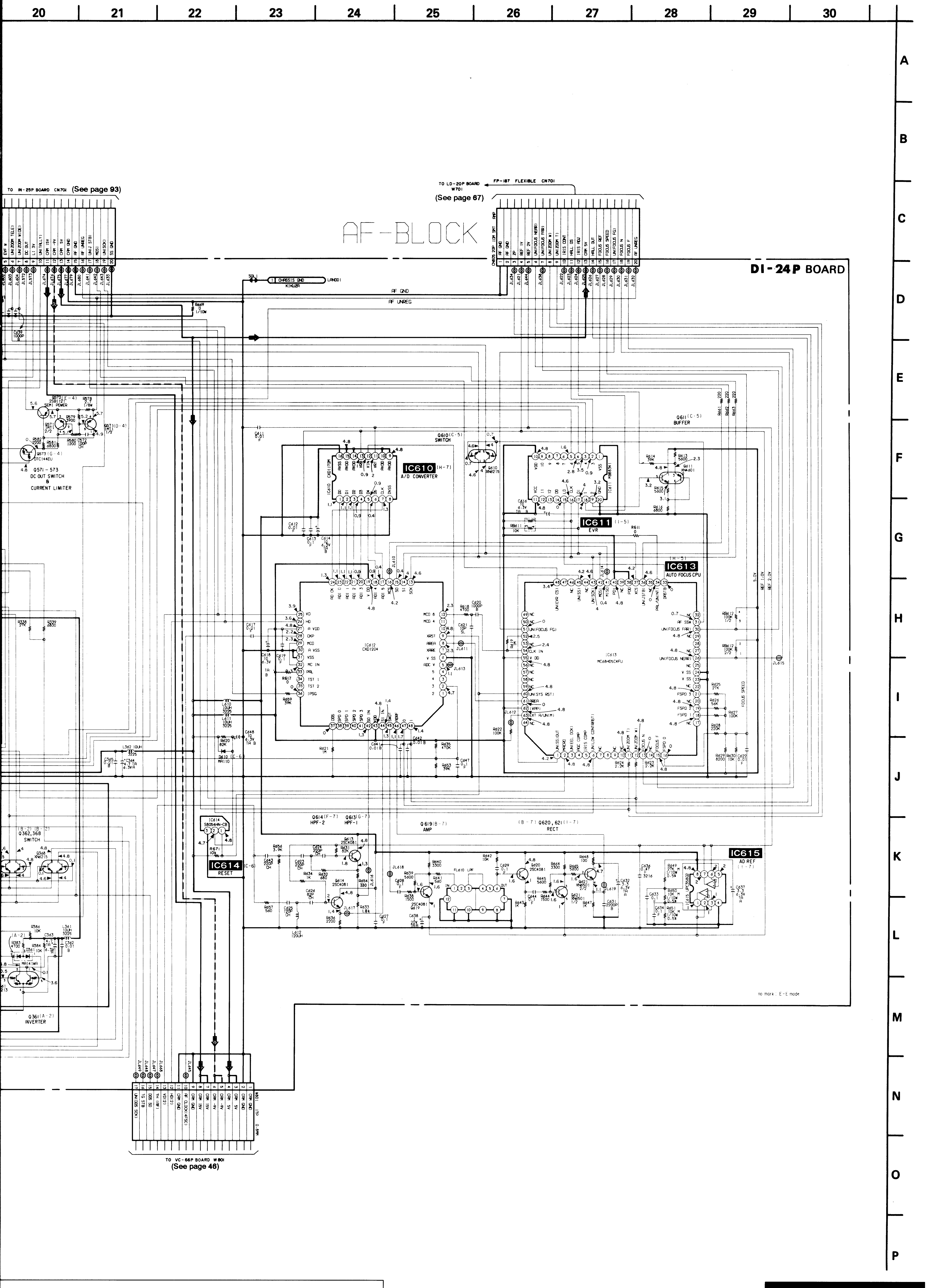
– Ref. No.: DI-24P, TI-20P Boards; 1,000 series –



IC801 (F-2)
MB8464-15LLPF
TITLE MEMORY
IC802 (B-1)
UPD6145G
CHARACTER GENERATOR
IC803 (A-2)
MB670479U
DIGITAL TITLE PROCESS
IC803 MB87485 <GATE ARRAY>
Q801 (F-1) INVERTER
Q802 (E-2) SWITCH
Q802 XN4210
Q803 (E-1) CG BUSY
Q803 XN6501
TP801 <PLL ADJ>
TP802 <GND>
TP803 <VDD>
TP804 <PLL>
TP805
TP806
CG CLOCK
PLL
R821 100K
R801 10K
C801 0.1 F
C802 10 6.3V TA B
L801 4.7UH 3225
RB804 10K
R826 2200
R827 1K
R828 2200
R829 2200
R831 470
R830 470
YRO
YGO
YBO
YBLK
HD
VD
VSS
CRO
CGO
CBO
UN(CBLK)
SHIFT IN
SO
UN(SCK)
CS
BUSY
JL809
JL810
JL811
JL812
JL813
JL814
JL815
JL816
JL817
JL818
JL819
JL820
JL821
JL822
JL823
JL824
JL825
JL826
JL827
JL828
CN801
1 EVF W
2 SS GND
3 SRAM CS
4 TITLE CS
5 UN(DDS SCK)
6 DDS SO
7 DDS SI
8 CG STB
9 CG BUSY
10 VD
11 HD
12 SS 5V
13 DDS B+
14 TY MIX
15 TITLE A/D
16 TY BLK
17 UN(TC BLK)
18 TB
19 TG
20 TR
no mark : E-E mode
TI-20P BOARD

: REC Y Signal
: REC Y/CHROMA Signal


FC-BLOCK
TO IN-25P BOARD CN702 (See page 93)
CN804 14P IDO SMT AMP
1 CAM GND
2 EVF OUT
3 VIDEO OUT
4 CAM GND
5 UNI(CMD 3)
6 UNI(CMD 2)
7 UNI(CMD 0)
8 CMI 3
9 CMI 2
10 CMI 1
11 CMI 0
12 UNI(AUTO LOCK)
13 SS GND
14 SS GND
CN803 20P IDO SMT AMP
1 EVF W
2 SS GND
3 SRAM CS
4 TITLE CS
5 UNI(DDS SCK)
6 DDS SO
7 DDS SI
8 CGSTBI
9 CG BUSY
10 VD
11 HD
12 SS 5V
13 DDS B+
14 TY MIX
15 TITLE A/D
16 TY BLK
17 UNI(TC BLK)
18 TB
19 TG
20 TR
TO IN-25P BOARD CN701 (See page 93)
CN802 20P IDO SMT AMP
1 SS 5V
2 EVER 5V
3 UNI(CAM ADJ)
4 SERIAL CONT
5 EVF W
6 UNI(ZOOM TELE)
7 UNI(ZOOM WIDE)
8 DC OUT
9 LI 3V
10 UNI(TALLY)
11 CAM 15V
12 CAM -9V
13 CAM 5V
14 CAM GND
15 AF GND
16 AF UNREG
17 UNI(J STB)
18 MOSI
19 UNI(SCK)
20 SS GND
Q562(G-4) FADER SWITCH
Q564(F-4) AUTO LOCK SWITCH
Q562(G-4) LOW CUT SWITCH
SYSTEM CLOCK
Q561 SYSTEM CONTROL FREQUENCY SWITCH
Q563(G-4) INVERTER
IC561 (C-3) FEATURE CONTROL (DDS CPU)
IC561 UPD75088GB
Q574 SWITCH
Q568,569(G-2) SWTCH
Q567(G-2) RESET
(G-3) Q565,566(G-3) LITHIUM BATTERY PRE END DETECT
Q570 EVER 5V DET
Q572(E-4) 2SB1121 SEMI POWER
Q571-573 DC OUT SWITCH & CURRENT LIMITER
IC361 (I-2) EVR/AUTO WHITE BALANCE CPU
IC361 MC68HC05N4FU
IC362 (I-2) RESET
IC362 S8054ALB
Q362,368 SWITCH
Q361(A-2) INVERTER
Q365(I-4) BLANKING PULSE SEP
(B-5) Q363,364(B-4) BLANKING
IC361 SWITCH,DISCHRGE
UPD4066BG IC363
UPC324G2 IC364
IC364 AW COMPALATOR, CURRENT SORCE, DC OUT BUFFER, TRIANGLE WAVEFORMER
Q367(H-4) CURRENT SORCE
W802 17P 0.8MM
17 TITLE A/D
16 UNI(C BLK)
15 TB
14 TG
13 TR
12 CAM GND
11 CAM GND
10 S AGC CONT
9 R OUT
8 B OUT
7 G OUT
6 DC OUT
5 BACK LIGHT
4 IRIS CONT
3 MAX GAIN
2 AGC REF
1 VSUB CONT
TO VC-66P BOARD W802 (See page 74)
W803 17P 0.8MM
17 CAM GND
16 EVF OUT
15 CAM GND
14 VIDEO OUT
13 CAM GND
12 AW ADJ
11 LD
10 EVR 5V
9 EVR 5V
8 UNI(CAM ADJ)
7 EVR CLK
6 EVR DI
5 UNI(A/D EN)
4 TY CHR
3 SS GND
2 SS GND
1 SS GND
TO VC-66P BOARD W803 (See page 74)
❶
❷

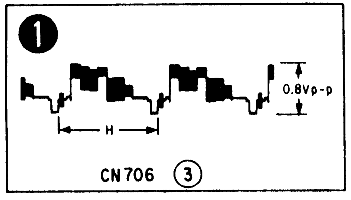

20
21
22
23
24
25
26
27
28
29
30
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
TO IN-25P BOARD CN701 (See page 93)
TO LD-20P BOARD W701 (See page 67)
FP-187 FLEXIBLE CN701
AF-BLOCK
DI-24P BOARD
CHASSIS GND
AF GND
AF UNREG
Q572 SEMI POWER
Q571-573 DC OUT SWITCH & CURRENT LIMITER
Q610 SWITCH
IC610 A/D CONVERTER
Q611 BUFFER
IC611 EVR
IC613 AUTO FOCUS CPU
IC612 CXD1204
IC613 MC68HC05C4FU
IC614 RESET
Q614 HPF-2
Q613 HPF-1
Q619 AMP
Q620,621 RECT
FL610 LPF
IC615 AD REF
Q362,368 SWITCH
Q361 INVERTER
FOCUS SPEED
no mark : E-E mode
TO VC-66P BOARD W801 (See page 46)

- MA-38P board has four layers structure but inner two layers' patterns are omitted.

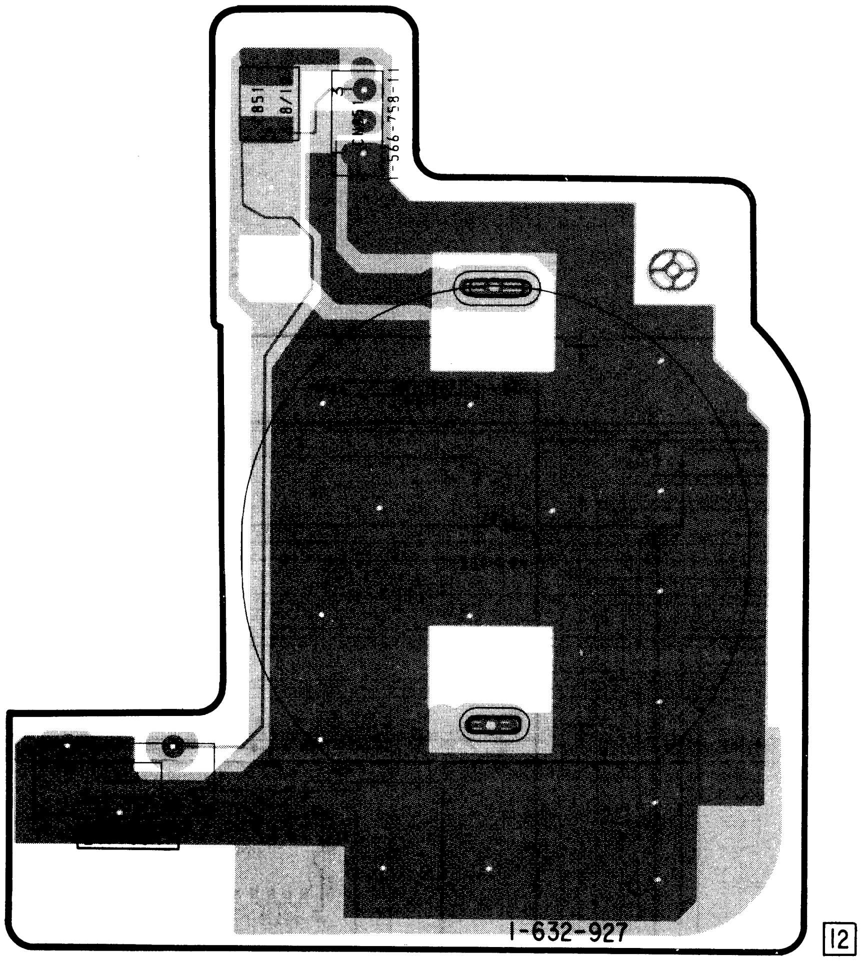
Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

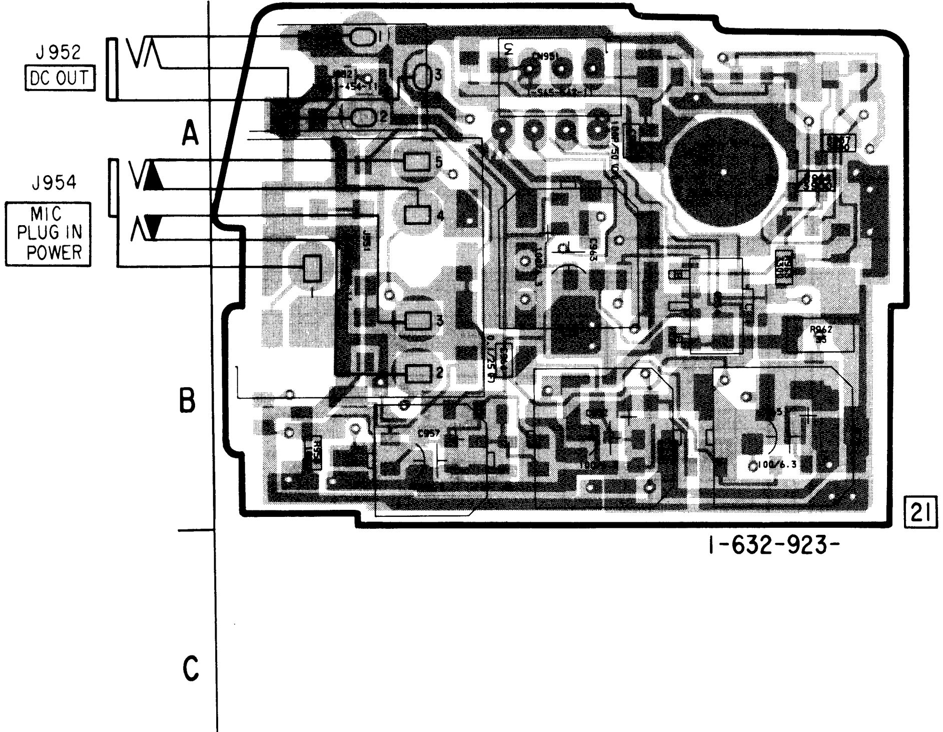
IN-25 BOARD



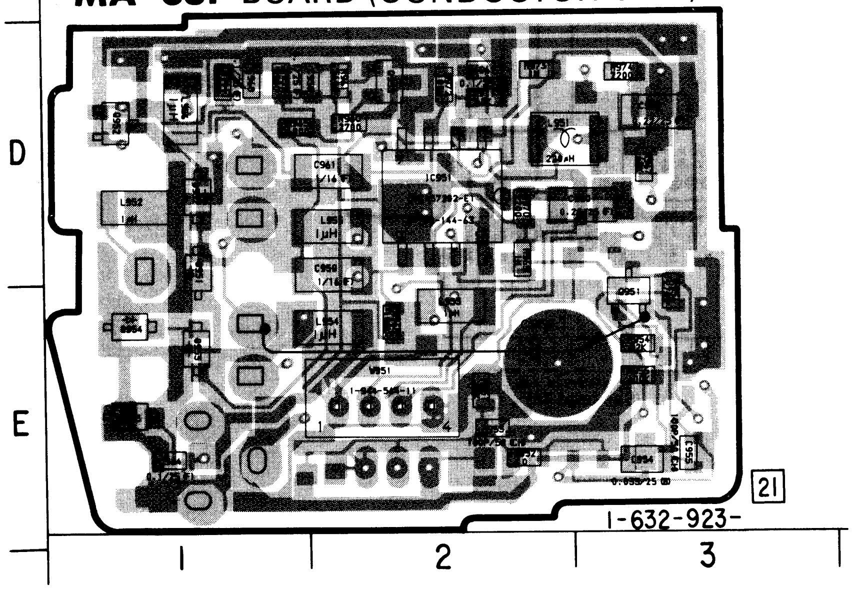
LI-15 BOARD (COMPONENT SIDE)


B51
8/1
1-566-758-11
1-632-927
12

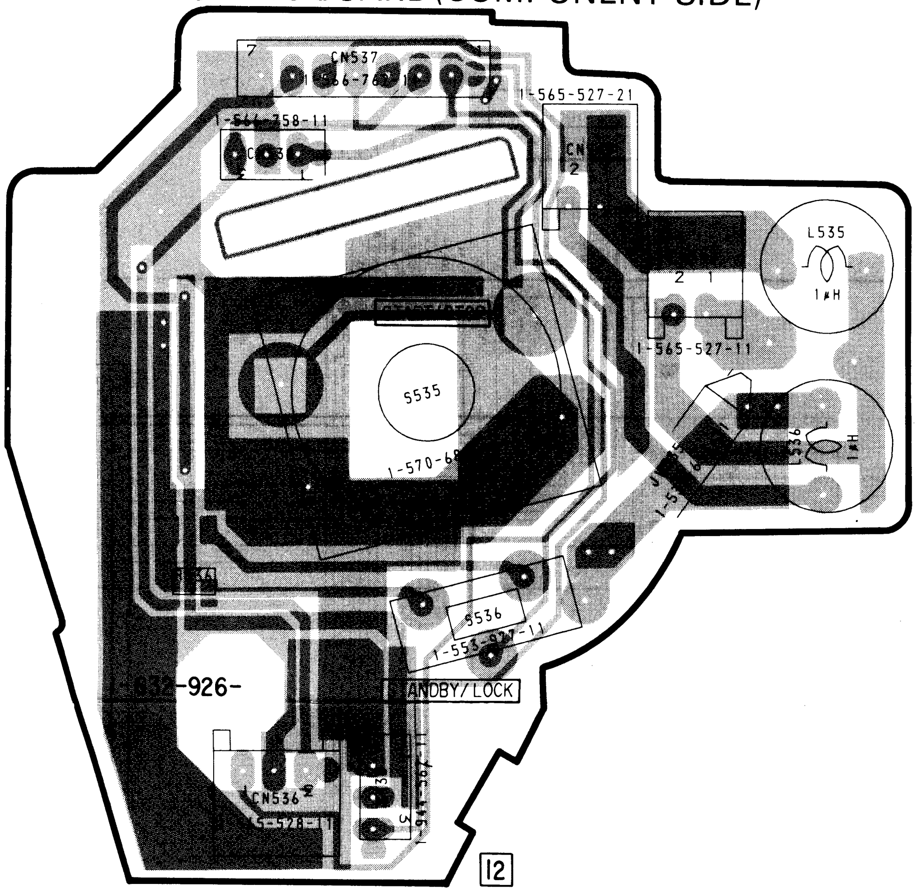
MA-38P BOARD (COMPONENT SIDE)


J952
DC OUT
A
J954
MIC
PLUG IN
POWER
B
21
1-632-923-
C

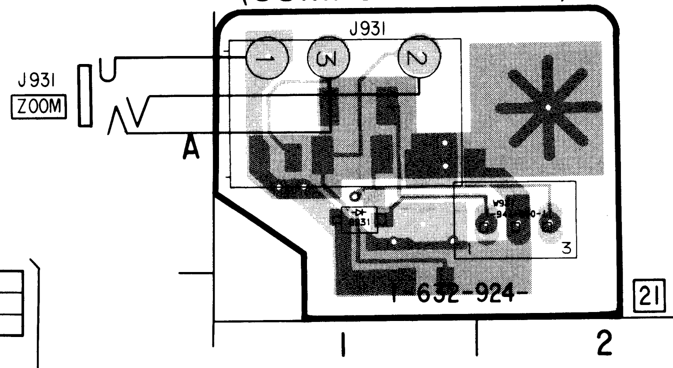
MA-38P BOARD (CONDUCTOR SIDE)


D
E
21
1-632-923-
1
2
3

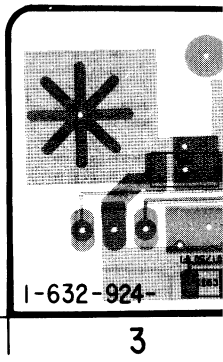
ST-28 BOARD(COMPONENT SIDE)

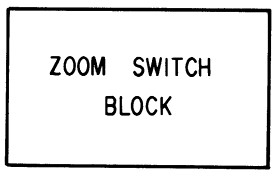

CN537
1-565-527-21
1-544-358-11
L535
1μH
1-565-527-11
S535
1-570-6
L536
S536
1-553-977-11
STANDBY/LOCK
1-632-926-
CN536
12

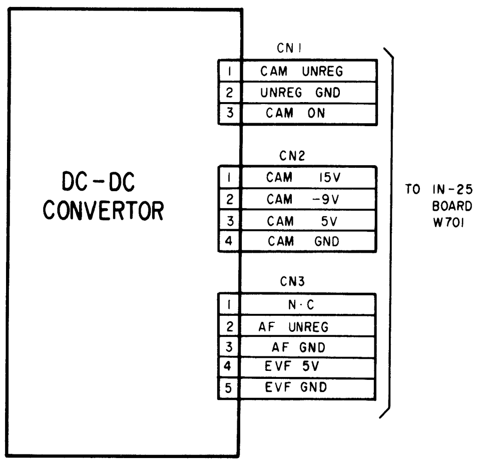
JK-48P BOARD
(COMPONENT SIDE)


J931
J931
ZOOM
A
1
3
2
1-632-924-
21
1
2

JK-48P BO
(CONDUCTO




ZOOM SWITCH
BLOCK


DC-DC
CONVERTOR
TO IN-25
BOARD
W701

CN1

1	CAM UNREG
2	UNREG GND
3	CAM ON

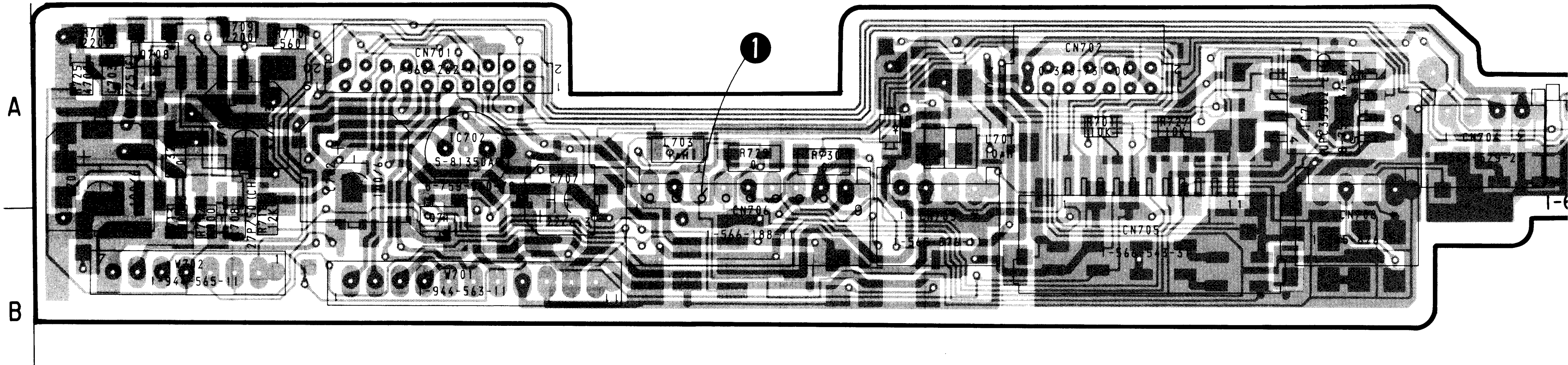
CN2

1	CAM 15V
2	CAM -9V
3	CAM 5V
4	CAM GND

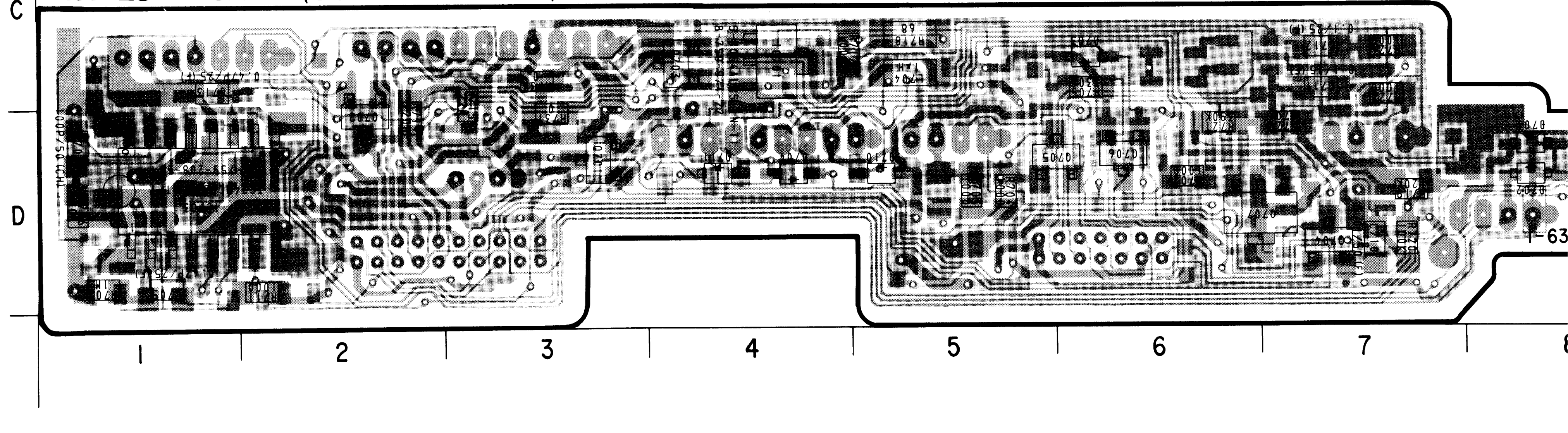
CN3

1	N·C
2	AF UNREG
3	AF GND
4	EVF 5V
5	EVF GND

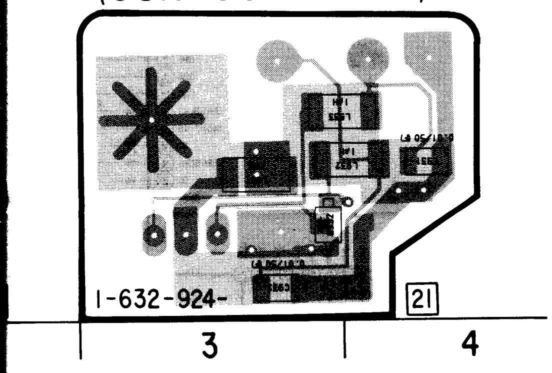
IN-25 BOARD (COMPONENT SIDE)


A
B
❶
CN701
CN702
CN703
CN704
CN705
IC701
L703
W701
1-944-563-11
1-944-565-11
1-566-188
1-566-343-

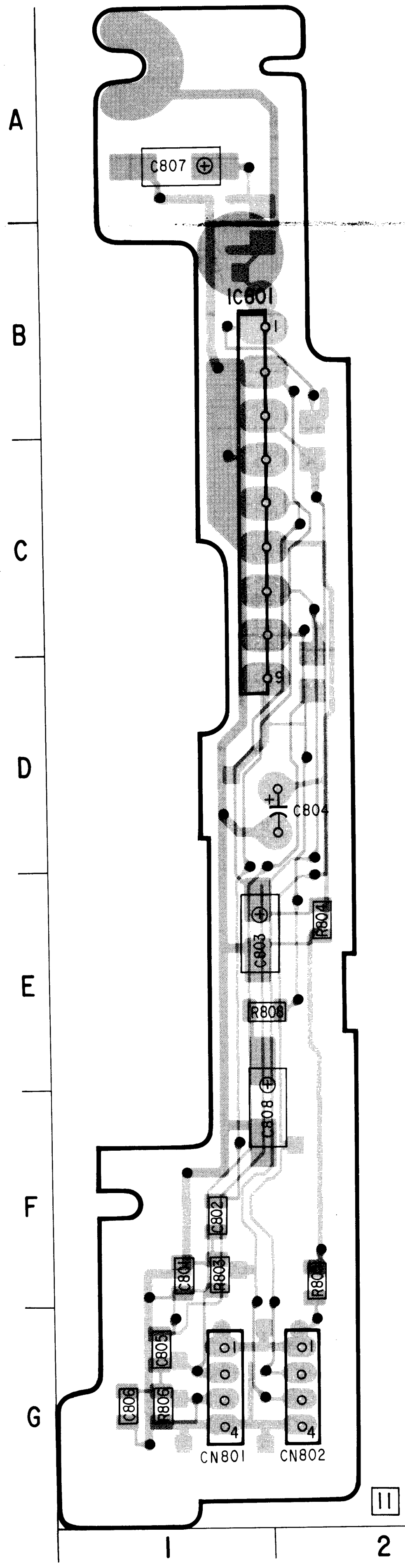
IN-25 BOARD (CONDUCTOR SIDE)


C
D
1
2
3
4
5
6
7
8

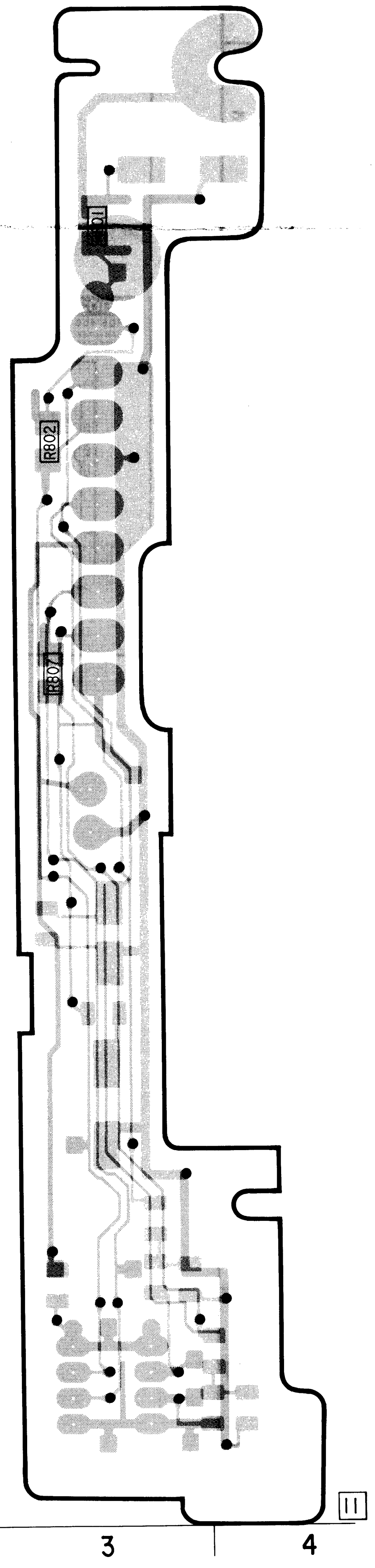
JK-48P BOARD
(CONDUCTOR SIDE)

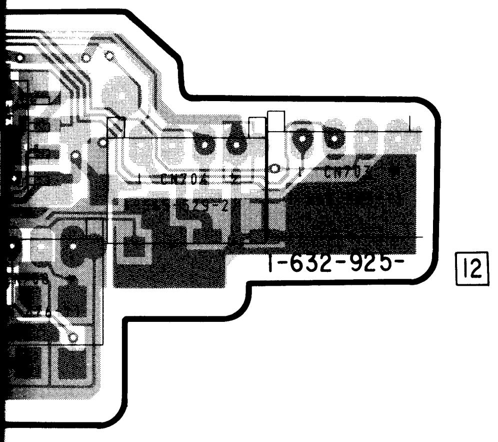

1-632-924-
21
3
4

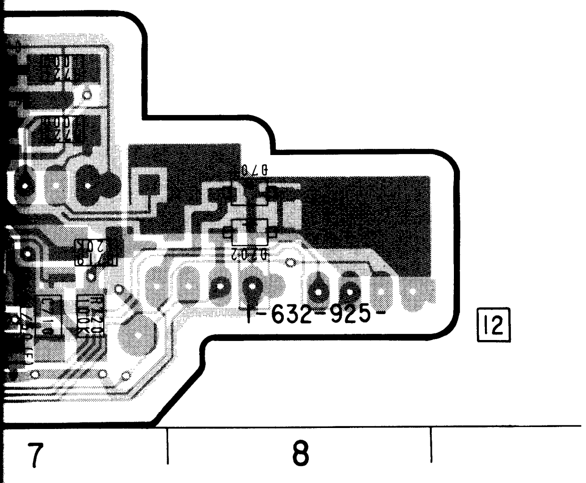
AG-2 BOARD
(COMPONENT SIDE)


A
B
C
D
E
F
G
C807
IC801
C804
C803
R804
R806
C808
C802
C801
R803
R801
C805
C806
R805
CN801
CN802
11
1
2

AG-2 BOARD
(CONDUCTOR SIDE)

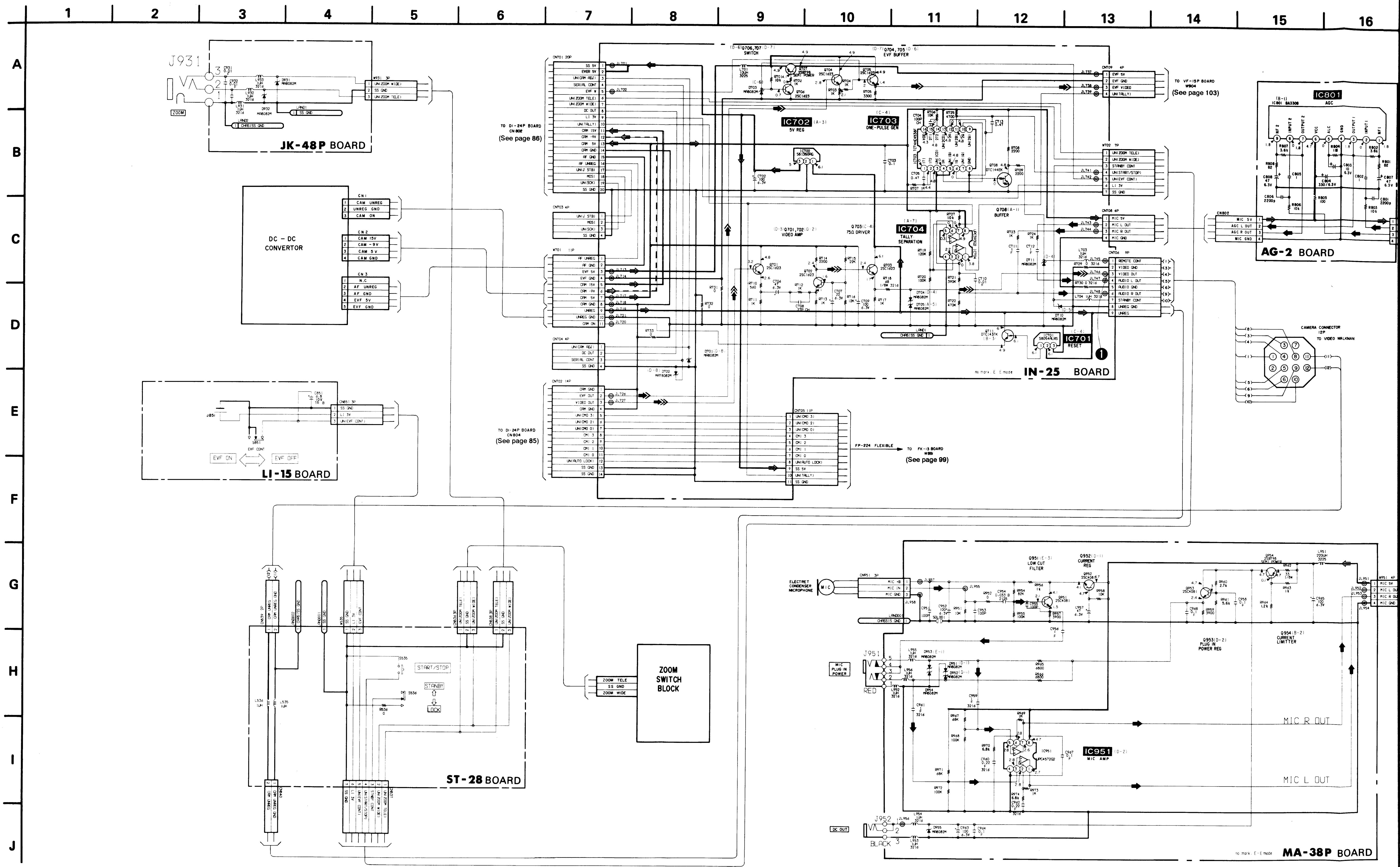

R802
R807
11
3
4


CN702
CN701
1-632-925-
12

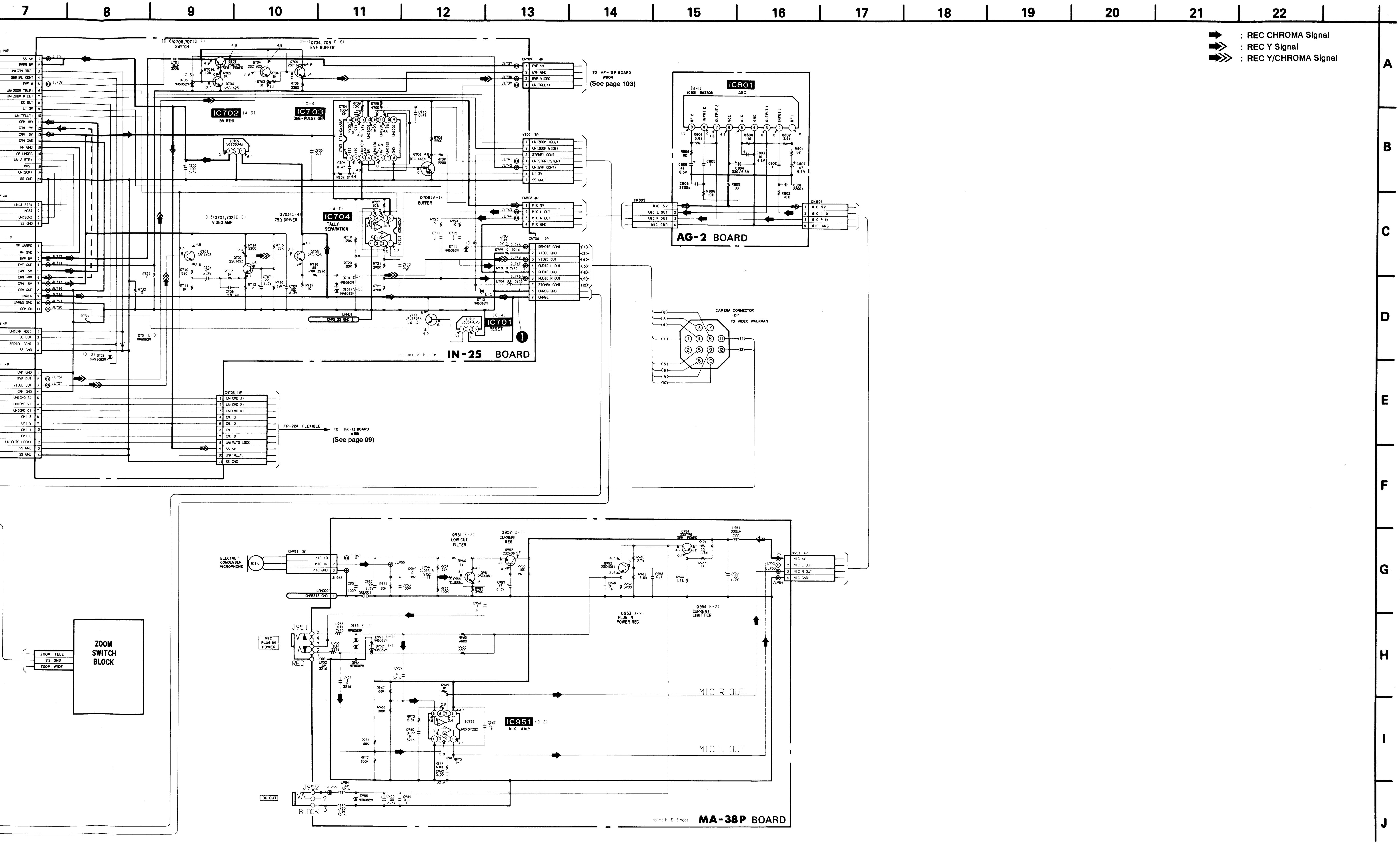

1-632-925-
12
7
8

IN-25 (INTERFACE), JK-48P (ZOOM REMOTE/EARPHONE JACK), LI-15 (LITIUM BATTERY), MA-38P (MIC AMP), ST-28 (START/STOP SWITCH, STANDBY SWITCH), AG-2 (AGC) SCHEMATIC DIAGRAM

– Ref. No.: IN-25, JK-48P, LI-15, MA-38P, ST-28, AG-2 Boards; 2,000 series –

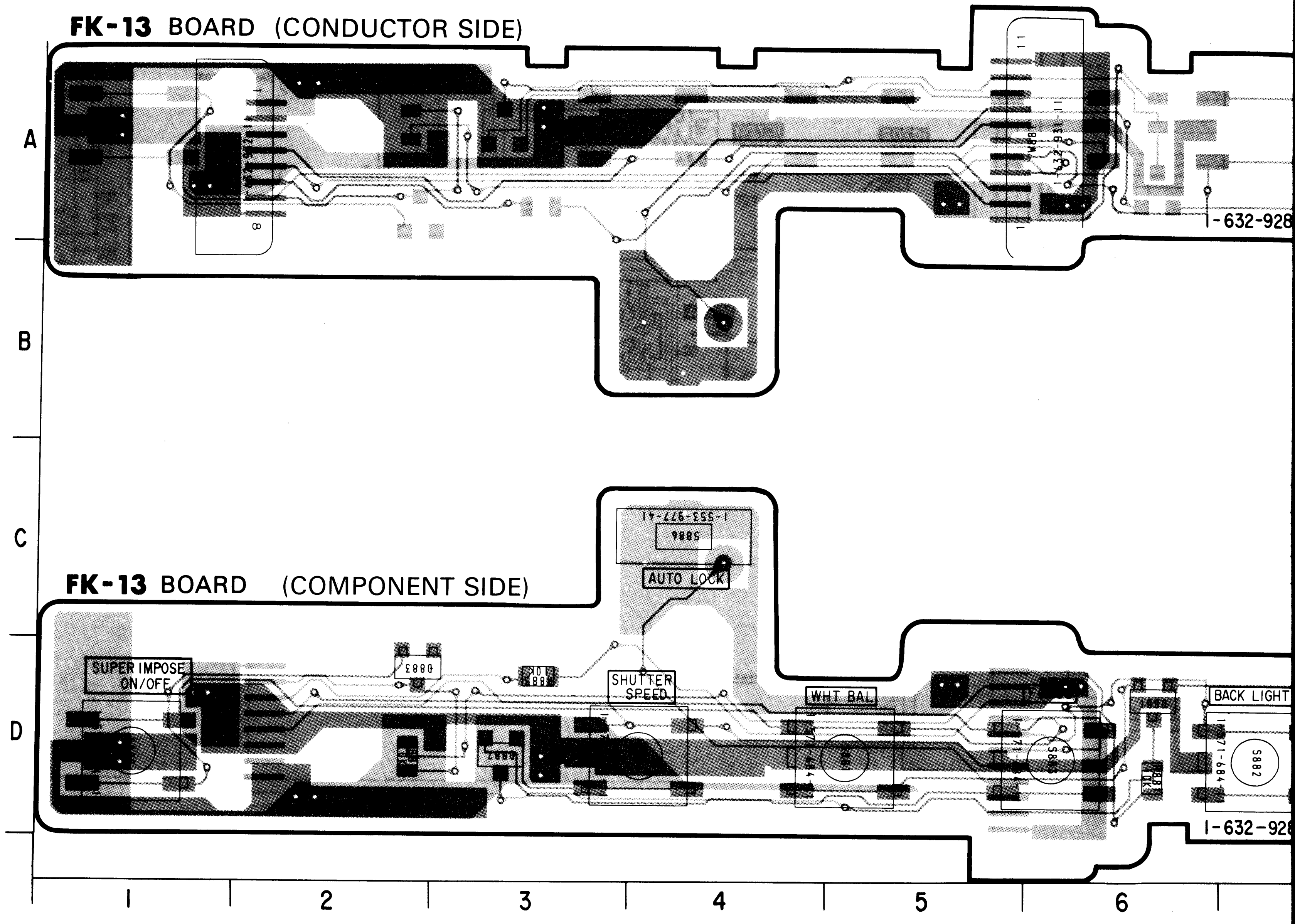

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
J931
ZOOM
JK-48P BOARD
DC - DC CONVERTOR
CN1
CAM UNREG
UNREG GND
CAM ON
CN2
CAM 15V
CAM -9V
CAM 5V
CAM GND
CN3
N.C
AF UNREG
AF GND
EVF 5V
EVF GND
J851
EVF ON
EVF OFF
LI-15 BOARD
TO DI-24P BOARD CN802 (See page 86)
TO DI-24P BOARD CN804 (See page 85)
IC702 5V REG
IC703 ONE-PULSE GEN
IC704 TALLY SEPARATION
IC701 RESET
Q706,707 SWITCH
Q704,705 EVF BUFFER
Q701,702 VIDEO AMP
Q703 75Ω DRIVER
Q708 BUFFER
TO VF-15P BOARD W904 (See page 103)
FP-224 FLEXIBLE
TO FK-13 BOARD W881 (See page 99)
IN-25 BOARD
IC801 AGC
AG-2 BOARD
CAMERA CONNECTOR 12P
TO VIDEO WALKMAN
START/STOP
STANBY
LOCK
ST-28 BOARD
ZOOM SWITCH BLOCK
ZOOM TELE
SS GND
ZOOM WIDE
ELECTRET CONDENSER MICROPHONE
Q951 LOW CUT FILTER
Q952 CURRENT REG
Q953 PLUG IN POWER REG
Q954 CURRENT LIMITTER
J951
MIC PLUG IN POWER
RED
IC951 MIC AMP
MIC R OUT
MIC L OUT
J952
BLACK
DC OUT
MA-38P BOARD

A-38P (MIC AMP), ST-28 (START/STOP SWITCH, STANDBY SWITCH), AG-2 (AGC) SCHEMATIC DIAGRAM


: REC CHROMA Signal
: REC Y Signal
: REC Y/CHROMA Signal
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
A
B
C
D
E
F
G
H
I
J
IN-25 BOARD
no mark : E-E mode
Q706,707 SWITCH
Q704,705 EVF BUFFER
Q707 2SB798 SEMI POWER
Q704 2SC1623
Q705 2SC1623
Q706 2SC1623
IC702 5V REG
IC702 S81350AG
IC703 ONE-PULSE GEN
IC703 TC74HC4538F
Q708 BUFFER
Q708 DTC144EK
Q701,702 VIDEO AMP
Q701 2SC1623
Q702 2SC1623
Q703 75Ω DRIVER
Q703 2SC1623
IC704 TALLY SEPARATION
IC704 UPC393G2
IC701 RESET
IC701 S8054ALRS
Q711 DTC143TK
LAND1 CHASSIS GND
SS 5V
EVER 5V
UN(CAM ADJ)
SERIAL CONT
EVF W
UN(ZOOM TELE)
UN(ZOOM WIDE)
DC OUT
LI 3V
UN(TALLY)
CAM 15V
CAM -9V
CAM 5V
CAM GND
AF GND
AF UNREG
UN(J STB)
MOSI
UN(SCK)
SS GND
EVF 5V
EVF GND
UNREG
UNREG GND
CAM ON
EVF OUT
VIDEO OUT
UN(CMD 3)
UN(CMD 2)
UN(CMD 0)
CMI 3
CMI 2
CMI 1
CMI 0
UN(AUTO LOCK)
CN709 4P
EVF 5V
EVF GND
EVF VIDEO
UN(TALLY)
TO VF-15P BOARD W904
(See page 103)
W702 7P
UN(ZOOM TELE)
UN(ZOOM WIDE)
STANBY CONT
UN(START/STOP)
UN(EVF CONT)
LI 3V
SS GND
CN708 4P
MIC 5V
MIC L OUT
MIC R OUT
MIC GND
CN706 9P
REMOTE CONT
VIDEO GND
VIDEO OUT
AUDIO L OUT
AUDIO GND
AUDIO R OUT
STANBY CONT
UNREG GND
UNREG
CN705 11P
UN(CMD 3)
UN(CMD 2)
UN(CMD 0)
CMI 3
CMI 2
CMI 1
CMI 0
UN(AUTO LOCK)
SS 5V
UN(TALLY)
SS GND
FP-224 FLEXIBLE
TO FK-13 BOARD W881
(See page 99)
AG-2 BOARD
IC801 AGC
IC801 BA3308
NF 2
INPUT 2
OUTPUT 2
VCC
ALC
GND
OUTPUT 1
INPUT 1
NF 1
CN802
MIC 5V
AGC L OUT
AGC R OUT
MIC GND
CN801
MIC 5V
MIC L IN
MIC R IN
MIC GND
CAMERA CONNECTOR 12P
TO VIDEO WALKMAN
ZOOM SWITCH BLOCK
ZOOM TELE
SS GND
ZOOM WIDE
MA-38P BOARD
no mark : E-E mode
ELECTRET CONDENSER MICROPHONE
MIC
CN951 3P
MIC +B
MIC IN
MIC GND
LAND001 CHASSIS GND
Q951 LOW CUT FILTER
Q951 2SC4081
Q952 CURRENT REG
Q952 2SC4081
Q953 PLUG IN POWER REG
Q953 2SC4081
Q954 CURRENT LIMITTER
Q954 2SB798 SEMI POWER
W951 4P
MIC 5V
MIC L OUT
MIC R OUT
MIC GND
J951
MIC PLUG IN POWER
RED
J952
DC OUT
BLACK
IC951 MIC AMP
IC951 UPC4572G2
MIC R OUT
MIC L OUT

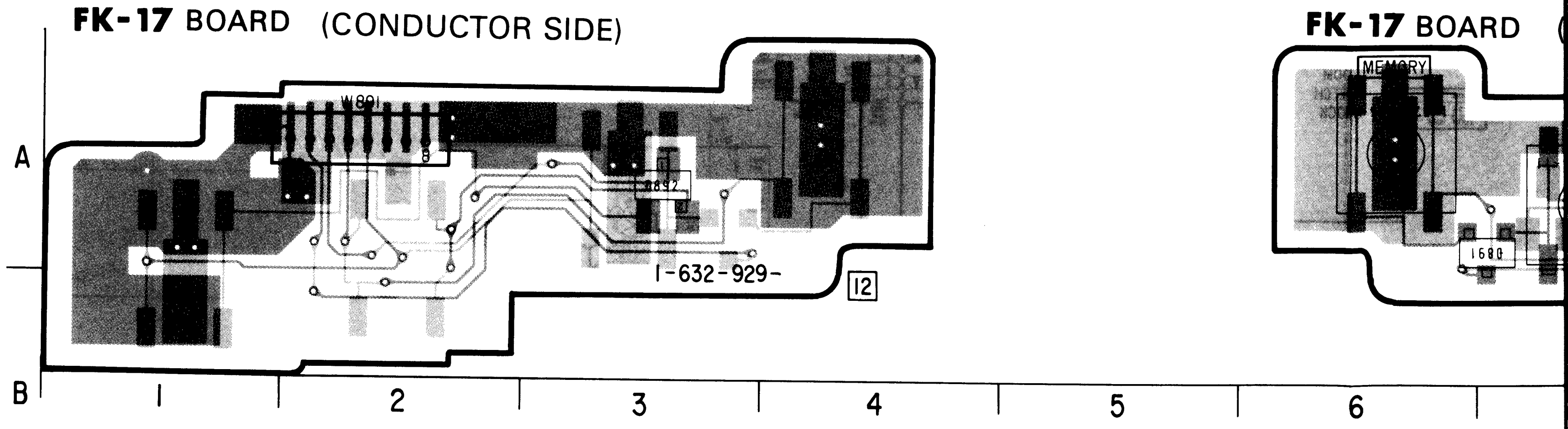
FK-13, FK-17 (FUNCTION SWITCH) PRINTED WIRING BOARDS

– Ref. No.: FK-13, FK-17 Boards; 3,000 series –


FK-13 BOARD (CONDUCTOR SIDE)

FK-13 BOARD (COMPONENT SIDE)

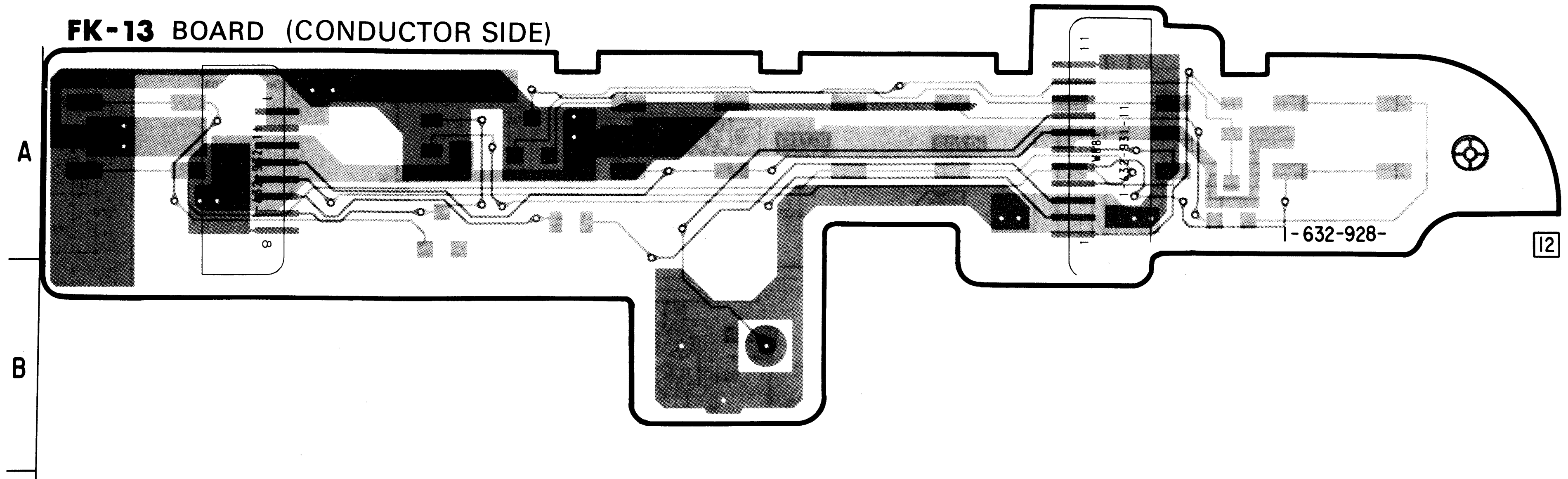
A
B
C
D
1
2
3
4
5
6
W881
1-632-928
1-553-977-41
S886
AUTO LOCK
SUPER IMPOSE ON/OFF
D883
SHUTTER SPEED
WHT BAL
BACK LIGHT
S882
1-632-928


FK-17 BOARD (CONDUCTOR SIDE)

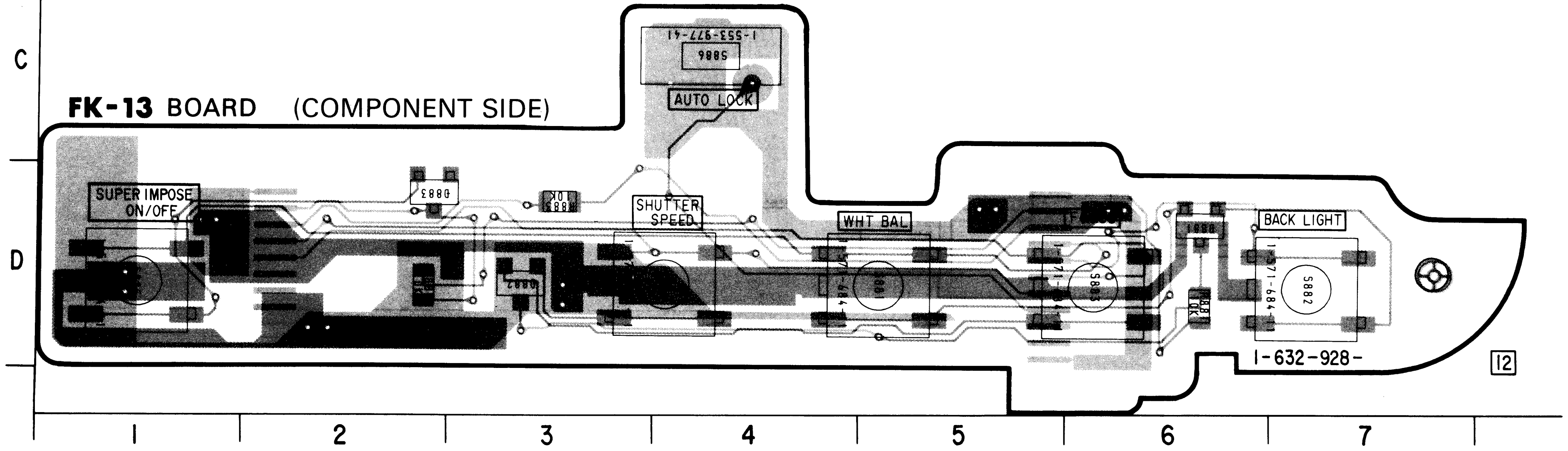
FK-17 BOARD

A
B
1
2
3
4
5
6
W891
1-632-929-
12
MEMORY
D891

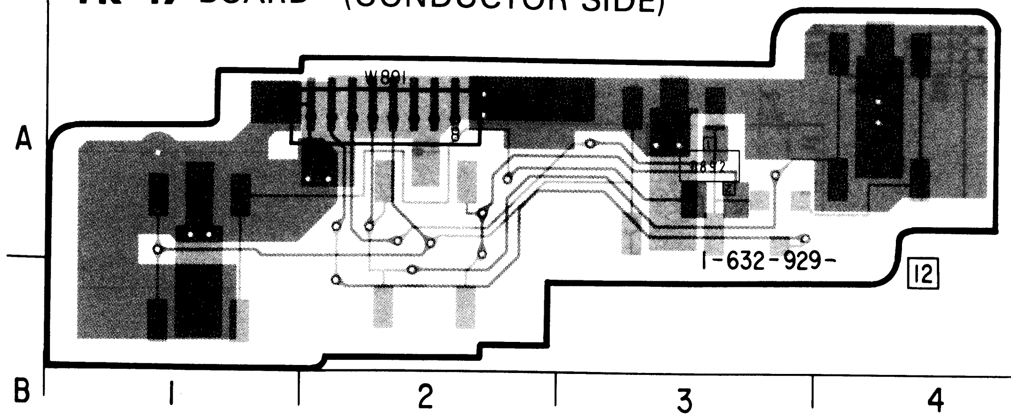
FK-13 BOARD (CONDUCTOR SIDE)


A
B
W881
1-632-931-11
1-632-928-
12

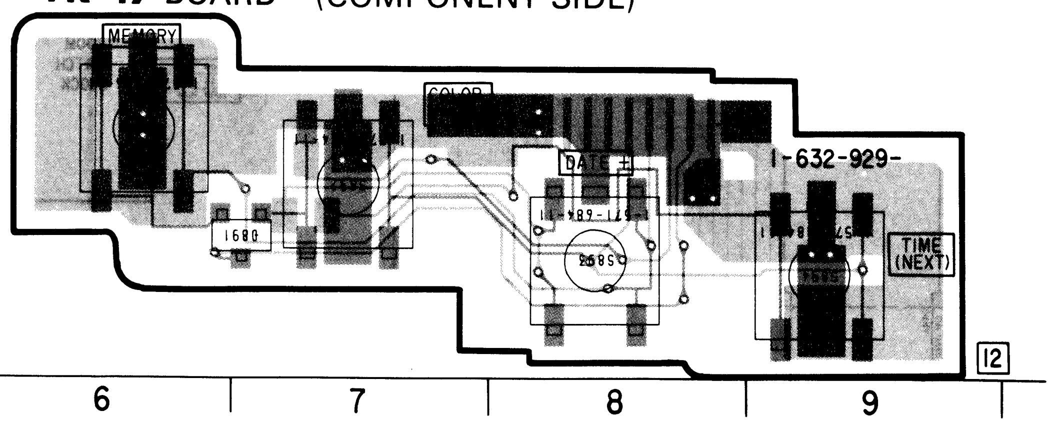
FK-13 BOARD (COMPONENT SIDE)


C
D
1-553-977-41
S886
AUTO LOCK
SUPER IMPOSE ON/OFF
D883
SHUTTER SPEED
WHT BAL
BACK LIGHT
S882
1-571-684-
1-632-928-
12
1
2
3
4
5
6
7

FK-17 BOARD (CONDUCTOR SIDE)

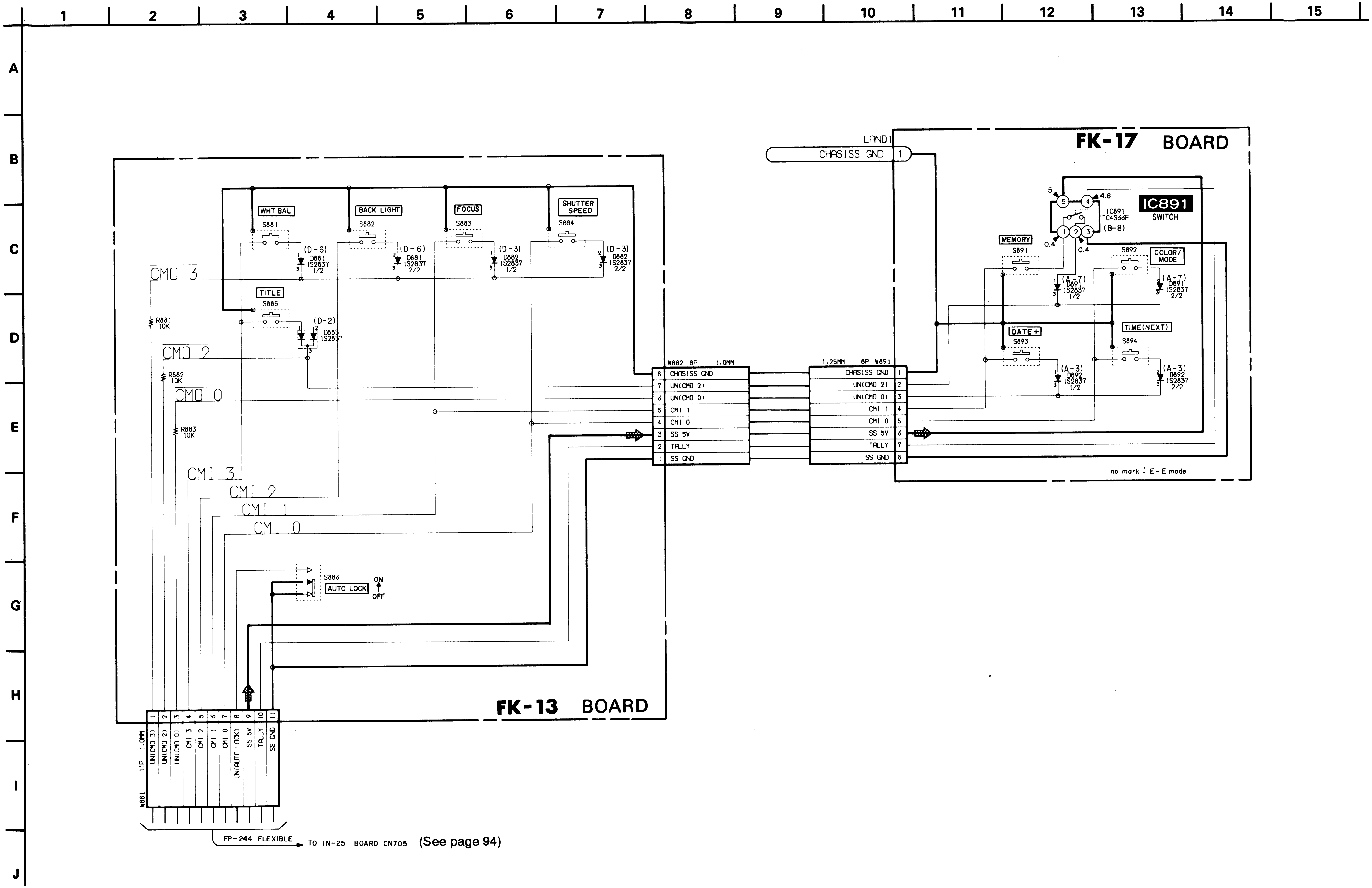

A
B
W891
1-632-929-
12
1
2
3
4

FK-17 BOARD (COMPONENT SIDE)


MEMORY
COLOR
DATE ±
1-632-929-
D891
S892
1-571-684-11
TIME (NEXT)
12
5
6
7
8
9

FK-13, FK-17 (FUNCTION SWITCH) SCHEMATIC DIAGRAM

– Ref. No.: FK-13, FK-17 Boards; 3,000 series –

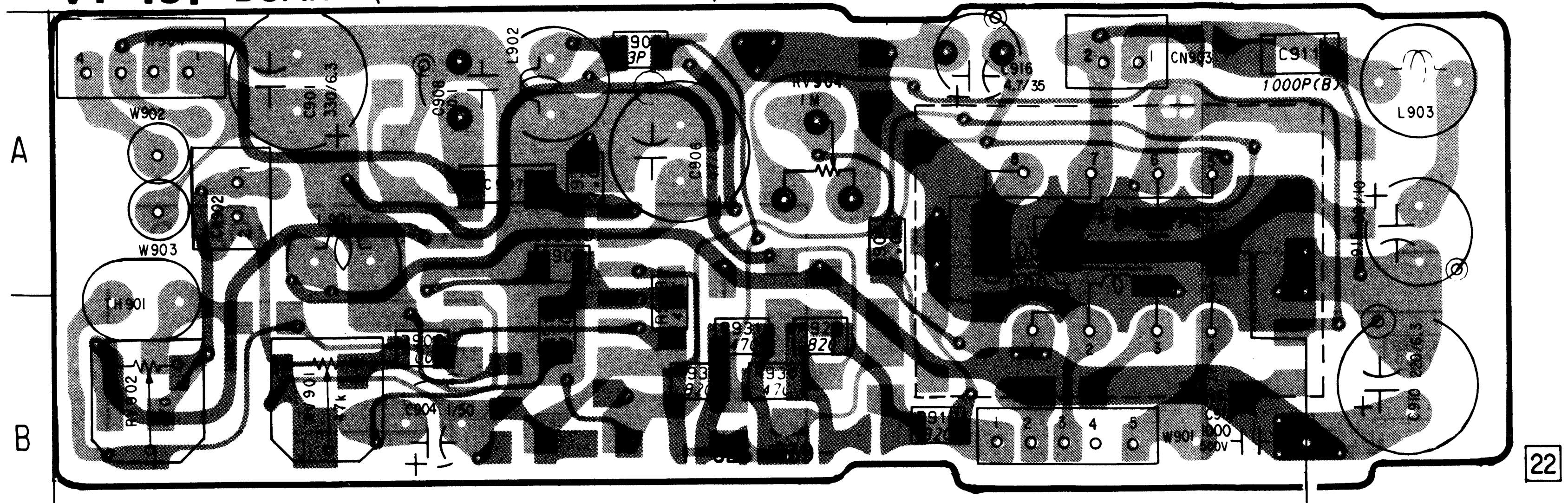

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
FK-13 BOARD
FK-17 BOARD
WHT BAL
S881
(D-6)
D881
1S2837
1/2
BACK LIGHT
S882
(D-6)
D881
1S2837
2/2
FOCUS
S883
(D-3)
D882
1S2837
1/2
SHUTTER SPEED
S884
(D-3)
D882
1S2837
2/2
TITLE
S885
(D-2)
D883
1S2837
CM0 3
CM0 2
CM0 0
R881
10K
R882
10K
R883
10K
CMI 3
CMI 2
CMI 1
CMI 0
S886
AUTO LOCK
ON
OFF
W882 8P 1.0MM
8 CHASISS GND
7 UN(CM0 2)
6 UN(CM0 0)
5 CMI 1
4 CMI 0
3 SS 5V
2 TALLY
1 SS GND
1.25MM 8P W891
CHASISS GND 1
UN(CM0 2) 2
UN(CM0 0) 3
CMI 1 4
CMI 0 5
SS 5V 6
TALLY 7
SS GND 8
LAND1
CHASISS GND 1
IC891
SWITCH
IC891
TC4S66F
(B-8)
5
4.8
0.4
0.4
MEMORY
S891
(A-7)
D891
1S2837
1/2
S892
COLOR/MODE
(A-7)
D891
1S2837
2/2
DATE+
S893
(A-3)
D892
1S2837
1/2
TIME(NEXT)
S894
(A-3)
D892
1S2837
2/2
no mark : E-E mode
W881 11P 1.0MM
1 UN(CM0 3)
2 UN(CM0 2)
3 UN(CM0 0)
4 CMI 3
5 CMI 2
6 CMI 1
7 CMI 0
8 UN(AUTO LOCK)
9 SS 5V
10 TALLY
11 SS GND
FP-244 FLEXIBLE
TO IN-25 BOARD CN705

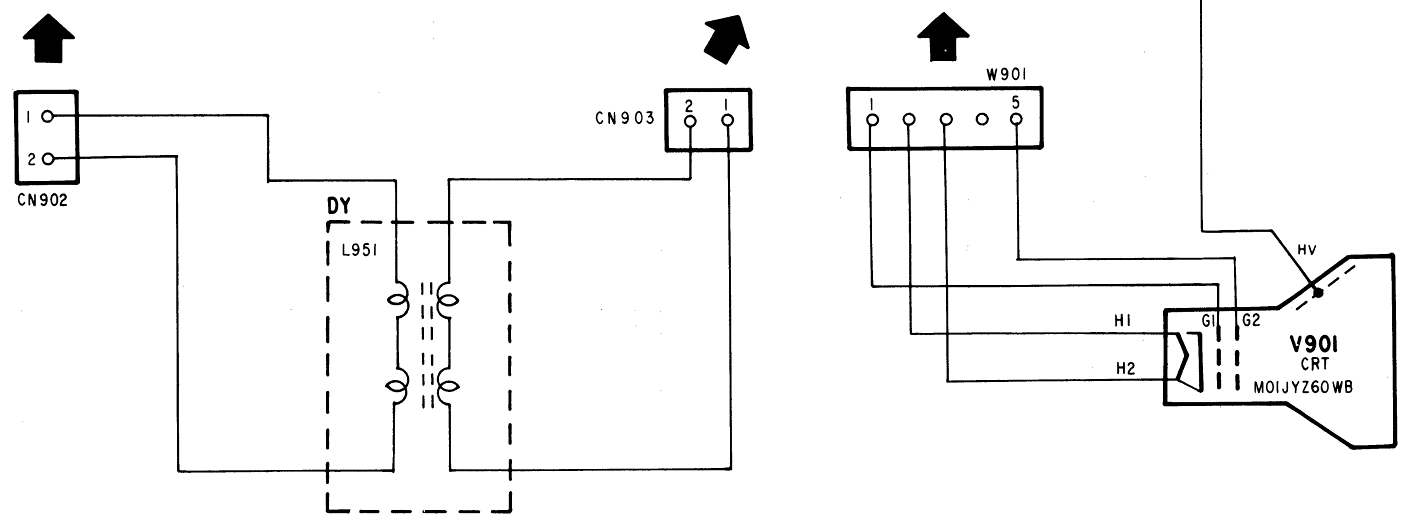
(See page 94)

VF-15P (VIEW FINDER), TL-22P, TL-23P (TALLY LED) SCHEMATIC DIAGRAM

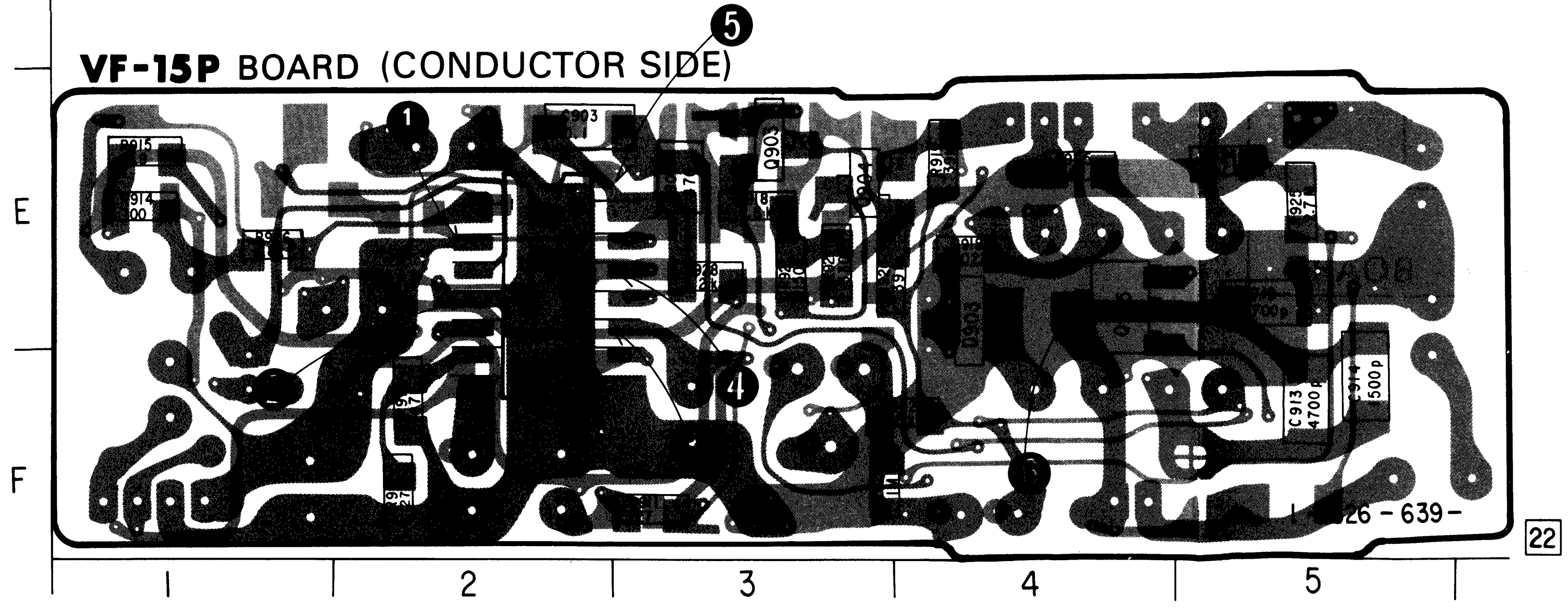
– Ref. No.: VF-15P, TL-22P, TL-23P Boards; 4,000 series –

VF-15P BOARD (COMPONENT SIDE)

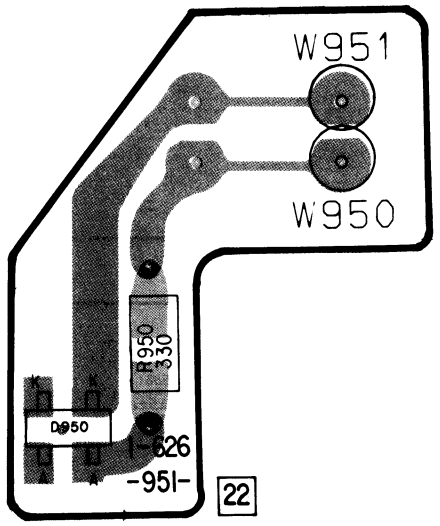

A
B
W902
W903
CH901
C901 330/6.3
L902
C906
RV901 1M
C916 4.7/35
CN903
C911 1000P(B)
L903
C910 220/6.3
W901
22


C
D
CN902
CN903
W901
DY
L951
HV
H1
H2
G1
G2
V901 CRT M01JYZ60WB

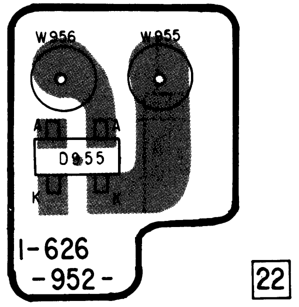
VF-15P BOARD (CONDUCTOR SIDE)


E
F
1
2
3
4
5
C913 4700p
C914 1500p
1-626-639-
22

TL-22P BOARD (COMPONENT SIDE)

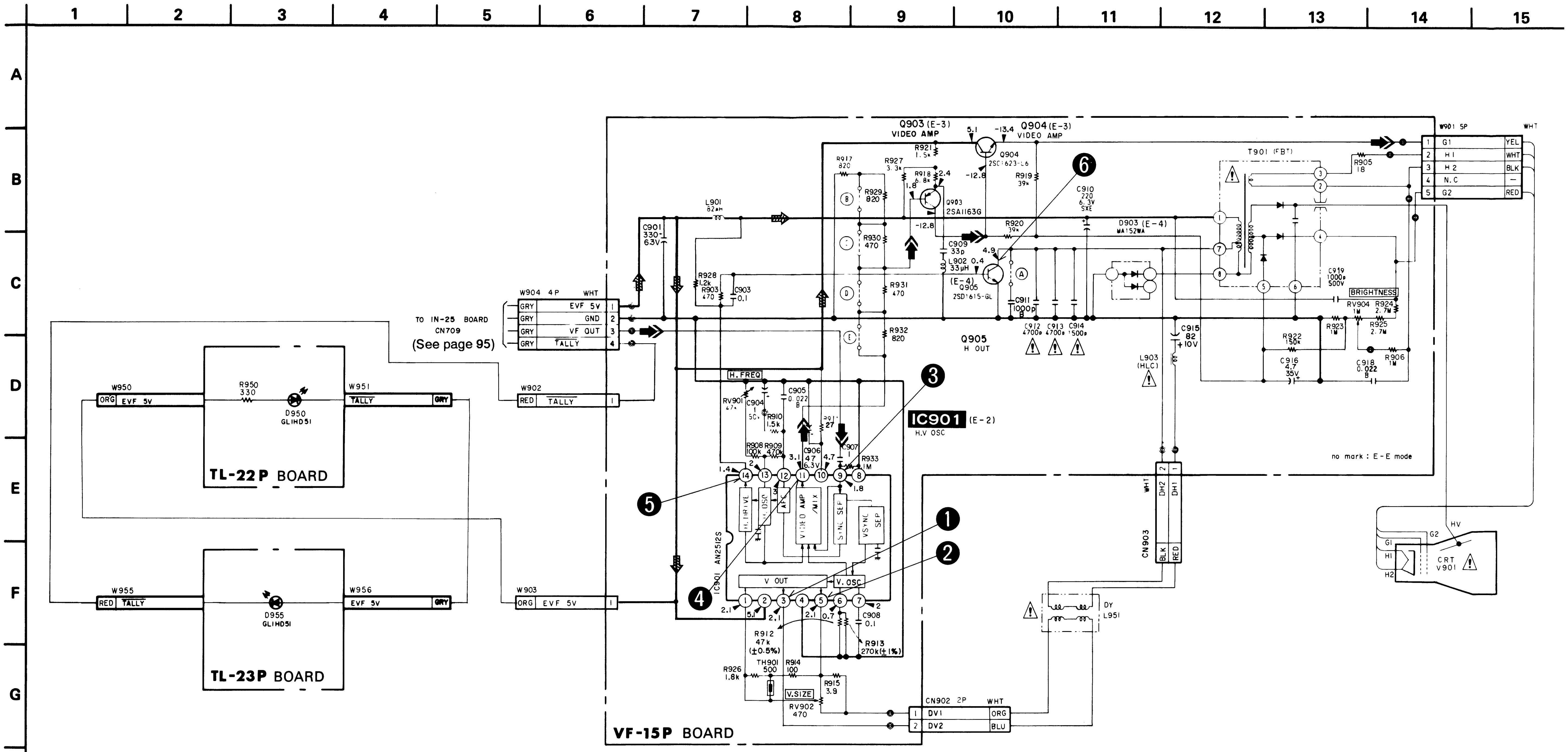

W951
W950
R950 330
D950
1-626
-951-
22

TL-23P BOARD (COMPONENT SIDE)

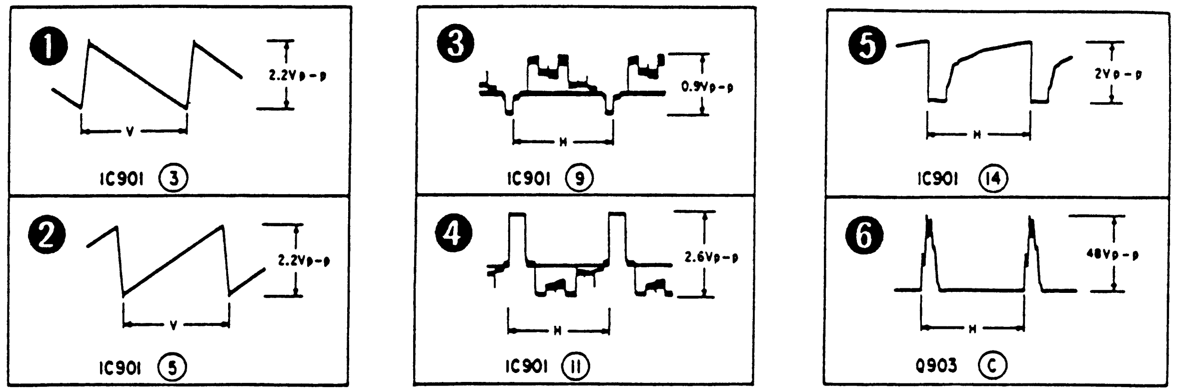

W956
W955
D955
1-626
-952-
22

VF-15P (VIEW FINDER), TL-22P, TL-23P (TALLY LED) PRINTED WIRING BOARDS

– Ref. No.: VF-15P, TL-22P, TL-23P Boards; 4,000 series –


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
TL-22P BOARD
TL-23P BOARD
VF-15P BOARD
W950 ORG EVF 5V
R950 330
D950 GL1HD51
W951 TALLY GRY
W955 RED TALLY
D955 GL1HD51
W956 EVF 5V GRY
W902 RED TALLY
W903 ORG EVF 5V
W904 4P WHT
GRY EVF 5V
GRY GND
GRY VF OUT
GRY TALLY
TO IN-25 BOARD CN709
(See page 95)
C901 330μ 63V
L901 82μH
R928 1.2k
R903 470
C903 0.1
Q903 (E-3) VIDEO AMP
Q904 (E-3) VIDEO AMP
Q904 2SC1623-L6
Q903 2SA1163G
Q905 2SD1615-GL
Q905 H OUT
R917 820
R927 3.3k
R921 1.5k
R918 6.8k
R919 39k
R929 820
R930 470
R931 470
R932 820
R920 39k
C909 33p
L902 0.4 33μH
C910 220 6.3V SXE
C911 1000p
C912 4700p
C913 4700p
C914 1500p
D903 (E-4) MA152WA
T901 (FBT)
R905 18
W901 5P WHT
G1 YEL
H1 WHT
H2 BLK
N.C –
G2 RED
C919 1000p 500V
BRIGHTNESS
RV904 1M
R924 2.7M
R923 1M
R925 2.7M
R922 150k
C916 4.7 35V
C918 0.022
R906 1M
C915 82 10V
L903 (HLC)
H.FREQ
RV901 47k
C904
R910 1.5k
C905 0.022
R911 27
C906 47 6.3V
C907 1
R908 100k
R909 470k
R933 1M
IC901 (E-2) H.V OSC
IC901 AN2512S
H.DRIVE
OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
V OUT
V.OSC
R912 47k (±0.5%)
TH901 500
R914 100
R926 1.8k
R915 3.9
C908 0.1
R913 270k(±1%)
V.SIZE
RV902 470
CN902 2P WHT
DV1 ORG
DV2 BLU
CN903
DH2 DH1 WHT
BLK RED
DY L951
CRT V901
HV
G1
G2
H1
H2
no mark : E-E mode
5.1
-13.4
-12.8
2.4
1.8
4.9
1.4
2
3.1
4.7
1.8
2.1
5.1
2.1
0.7
❶
❷
❸
❹
❺
❻

VF-15P BOARD

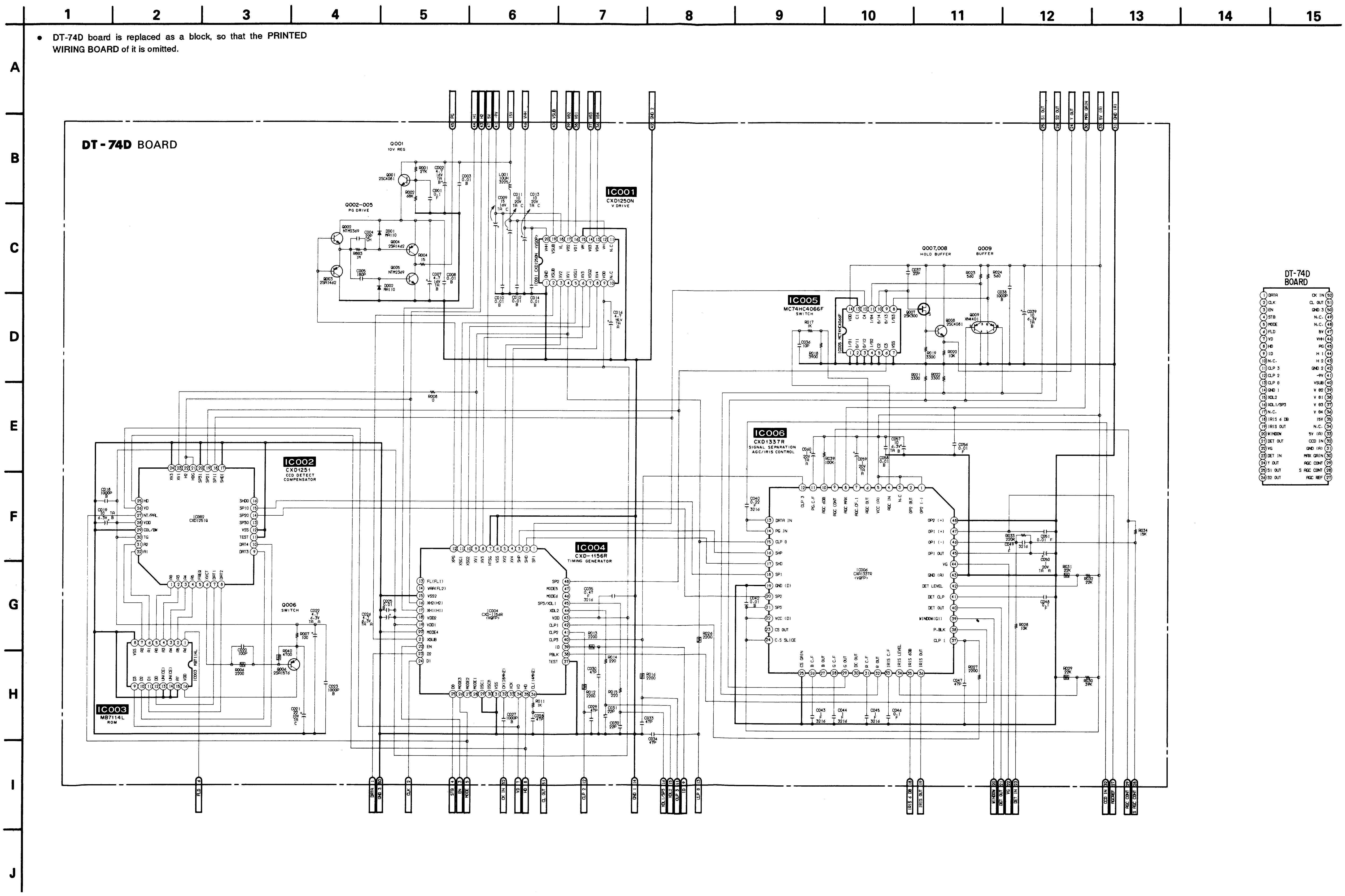


Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

➡ : REC Y Signal

DT-74D (CCD DRIVE/TIMING GENERATOR) SCHEMATIC DIAGRAM

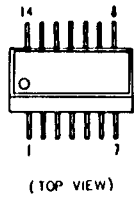
- DT-74D board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.



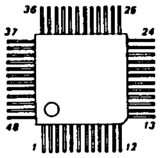
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
DT-74D BOARD
IC001
CXD1250N
V DRIVE
IC002
CXD1251
CCD DETECT COMPENSATOR
IC003
MB7114L
ROM
IC004
CXD-1156R
TIMING GENERATOR
IC005
MC74HC4066F
SWITCH
IC006
CXD1337R
SIGNAL SEPARATION AGC/IRIS CONTROL
Q001
10V REG
Q002-005
PG DRIVE
Q006
SWITCH
Q007,008
HOLD BUFFER
Q009
BUFFER
DT-74D BOARD
1 DATA
2 CLK
3 EN
4 STB
5 MODE
6 FLD
7 VD
8 HD
9 ID
10 N.C.
11 CLP 3
12 CLP 2
13 CLP 0
14 GND 1
15 XDL2
16 XDL1/SP3
17 N.C.
18 IRIS 6 DB
19 IRIS OUT
20 WINDOW
21 DET OUT
22 VG
23 DET IN
24 Y OUT
25 S1 OUT
26 S2 OUT
52 CK IN
51 CL OUT
50 GND 3
49 N.C.
48 N.C.
47 5V
46 VHH
45 PG
44 H 1
43 H 2
42 GND 2
41 -9V
40 VSUB
39 V 02
38 V 01
37 V 03
36 V 04
35 15V
34 N.C.
33 5V (A)
32 CCD IN
31 GND (A)
30 MAX GAIN
29 AGC CONT
28 S AGC CONT
27 AGC REF

4-3. SEMICONDUCTORS

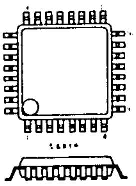
AN2512S


14
8
1
7
(TOP VIEW)

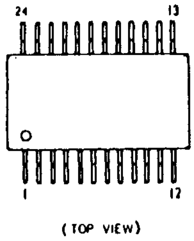
CXA1072R
CXA1338R
CXA1339R
CXD1204R
MC68HC05N4-SC406662


36
25
37
24
48
13
1
12

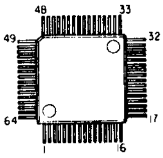
CXD1209Q



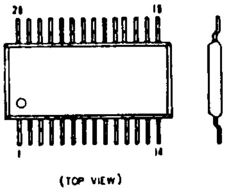
CXL1503N
CXL1504N


24
13
1
12
(TOP VIEW)

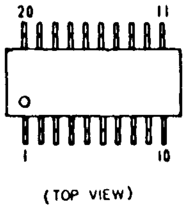
MB87485


48
33
49
32
64
17
1
16

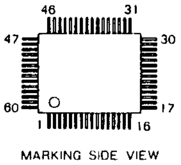
MB8464A-15LLPF


28
15
1
14
(TOP VIEW)

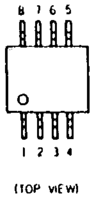
MB88341PFV


20
11
1
10
(TOP VIEW)

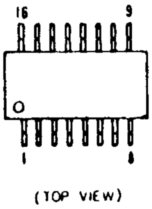
MC68HC05C4-SC411573


46
31
47
30
60
17
1
16
MARKING SIDE VIEW

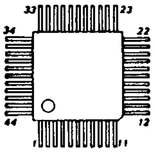
RC3414M


8 7 6 5
1 2 3 4
(TOP VIEW)

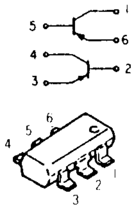
TK10500M


16
9
1
8
(TOP VIEW)

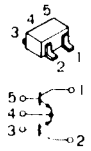
μPD7508BGB-514


33
23
34
22
44
12
1
11

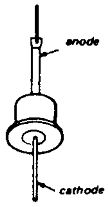
IMT1US


5
1
4
6
3
2
4
5
6
1
2
3

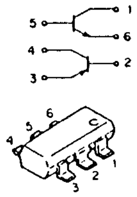
XN1213
XN1501


3
4
5
2
1
5
4
3
1
2

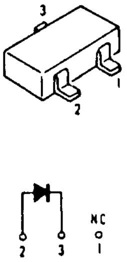
XN4210


anode
cathode

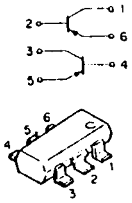
XN4601


5
1
6
4
2
3
4
5
6
1
2
3

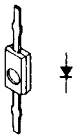
XN6215
XN6501



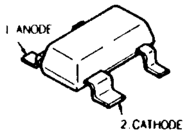
XN6401


2
1
6
3
4
5
4
5
6
1
2
3

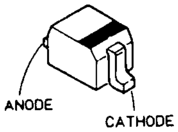
1T33C01



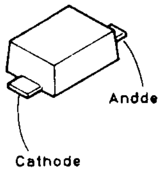
GL1HD51


1 ANODE
2 CATHODE

MA110
MA111


ANODE
CATHODE

MA8082-M


Andde
Cathode

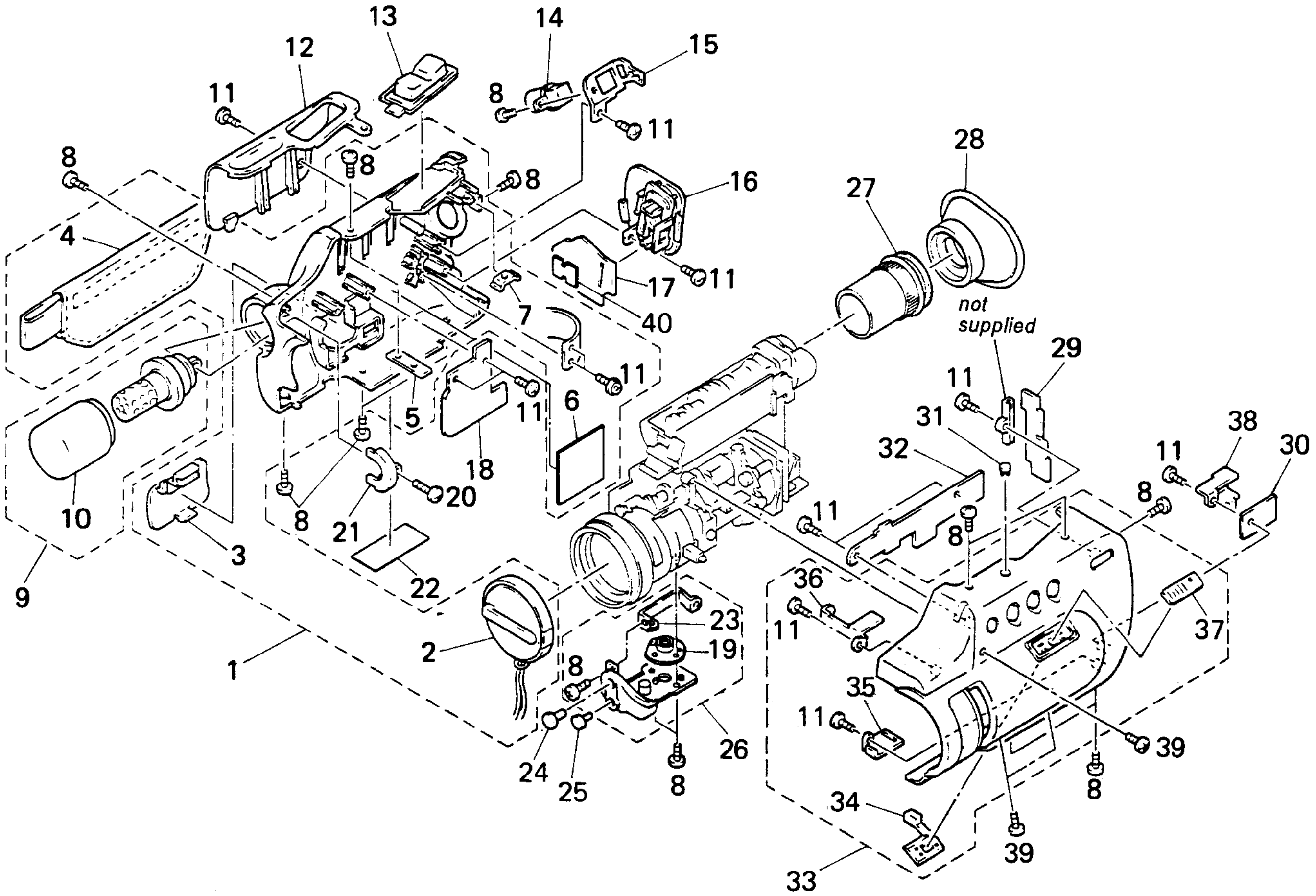
SECTION 5
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

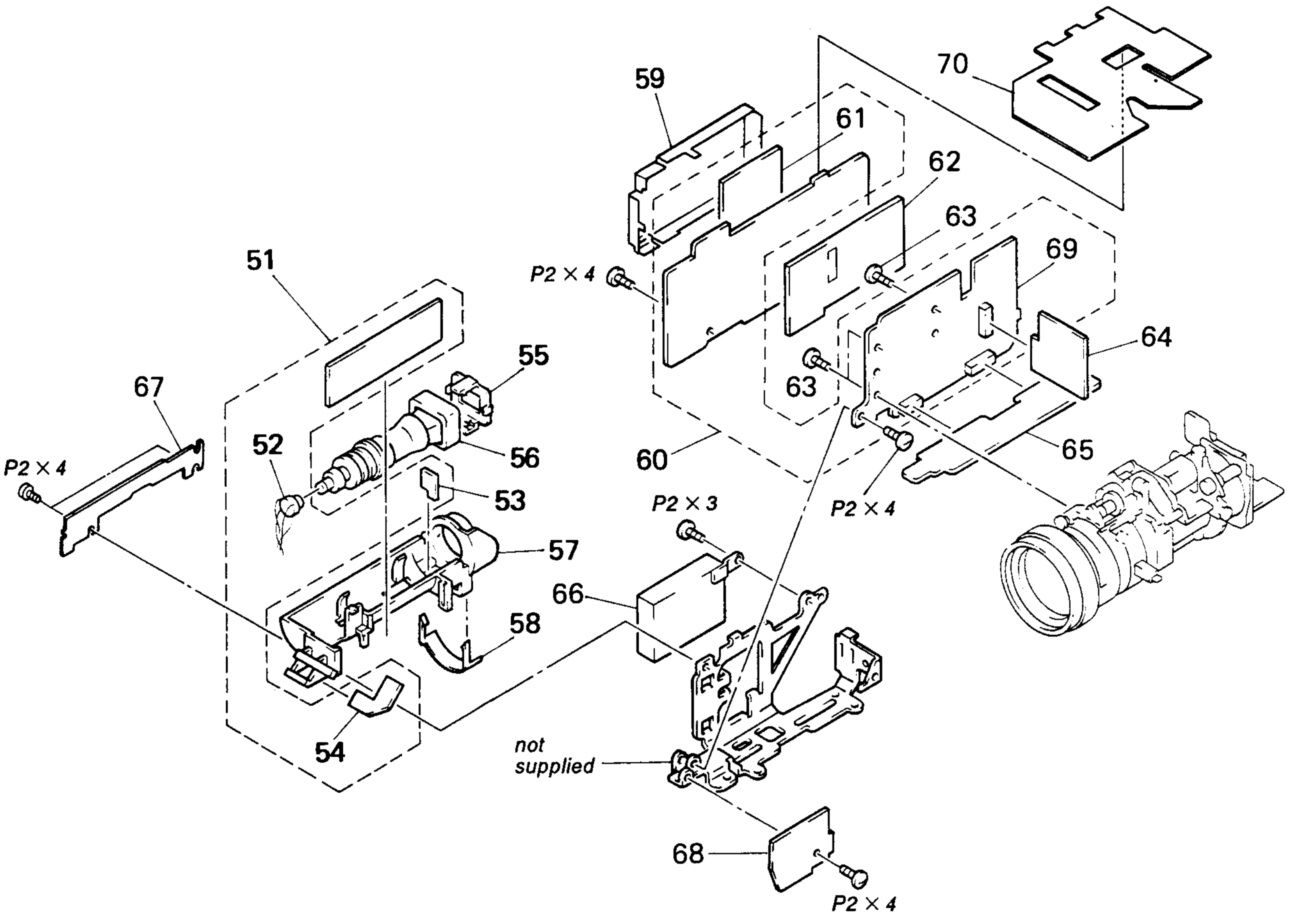
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET ASSEMBLY



No.	Part No.	Description	Remark
1	A-7081-022-A	CABINET (LEFT) BLOCK ASSY	2-8, 11
2	A-7091-015-B	CAP ASSY, LENS	
3	3-741-222-01	COVER, BATTERY	
4	3-736-807-01	BELT, GRIP	
5	3-741-211-01	NUT (D), PLATE	
6	3-741-227-03	LABEL, SERVICE	
7	3-741-205-01	NUT (A), PLATE	
8	3-719-381-01	SCREW (M2X4)	
9	1-542-101-21	MICROPHONE (C-2020A)	10
10	X-2536-712-1	WIND SCREEN	
11	3-713-790-21	SCREW (M2X6), TAPPING, P3	
12	3-741-226-11	COVER, ZOOM BUTTON	
13	1-572-168-11	SWITCH, PUSH (ZOOM) (S951)	
14	1-575-245-11	CORD, CONNECTION (PLUG, CONNECTOR 12P)	
15	*3-741-202-01	BRACKET, CAMERA CONNECTOR	
16	X-3741-201-1	BUTTON ASSY, S/S	
17	*1-632-926-11	ST-28 BOARD	
18	*1-632-927-11	LI-15 BOARD	
19	3-716-454-01	SCREW, TRIPOD	
20	2-370-905-41	SCREW (B) (2X10), TAPPING	
21	3-728-184-01	HOLDER, MICROPHONE	
22	*3-741-246-01	LABEL, MODEL NUMBER (AEP)	
23	3-741-237-01	NUT (L), PLATE	
24	3-728-267-01	COVER, 3.5 JACK (MIC, REMOTE ZOOM)	
25	3-728-266-01	COVER, 2.5 JACK (DC-OUT)	
26	X-3741-206-1	CABINET (FRONT) ASSY	8, 19, 23
27	X-3741-203-1	HOLDER ASSY, FINDER	
28	3-733-922-01	EYE CUP	
29	*1-632-929-11	FK-17 BOARD	
30	*1-632-924-11	JK-48P BOARD	
31	3-741-201-01	BLIND, VR	
32	*1-632-928-11	FK-13 BOARD	
33	X-3741-207-1	CABINET (R) ASSY	11, 34-37
34	3-741-204-01	BASE, KNOB, AUTO LOCK	
35	3-741-210-01	BRACKET, BELT	
36	3-741-238-01	NUT (Z), PLATE	
37	3-741-203-01	KNOB, AUTO LOCK	
38	3-741-239-01	REINFORCEMENT, JK	
39	3-719-408-01	SCREW (B2), TAPPING, P3	
40	*3-741-243-01	REINFORCEMENT, ST	

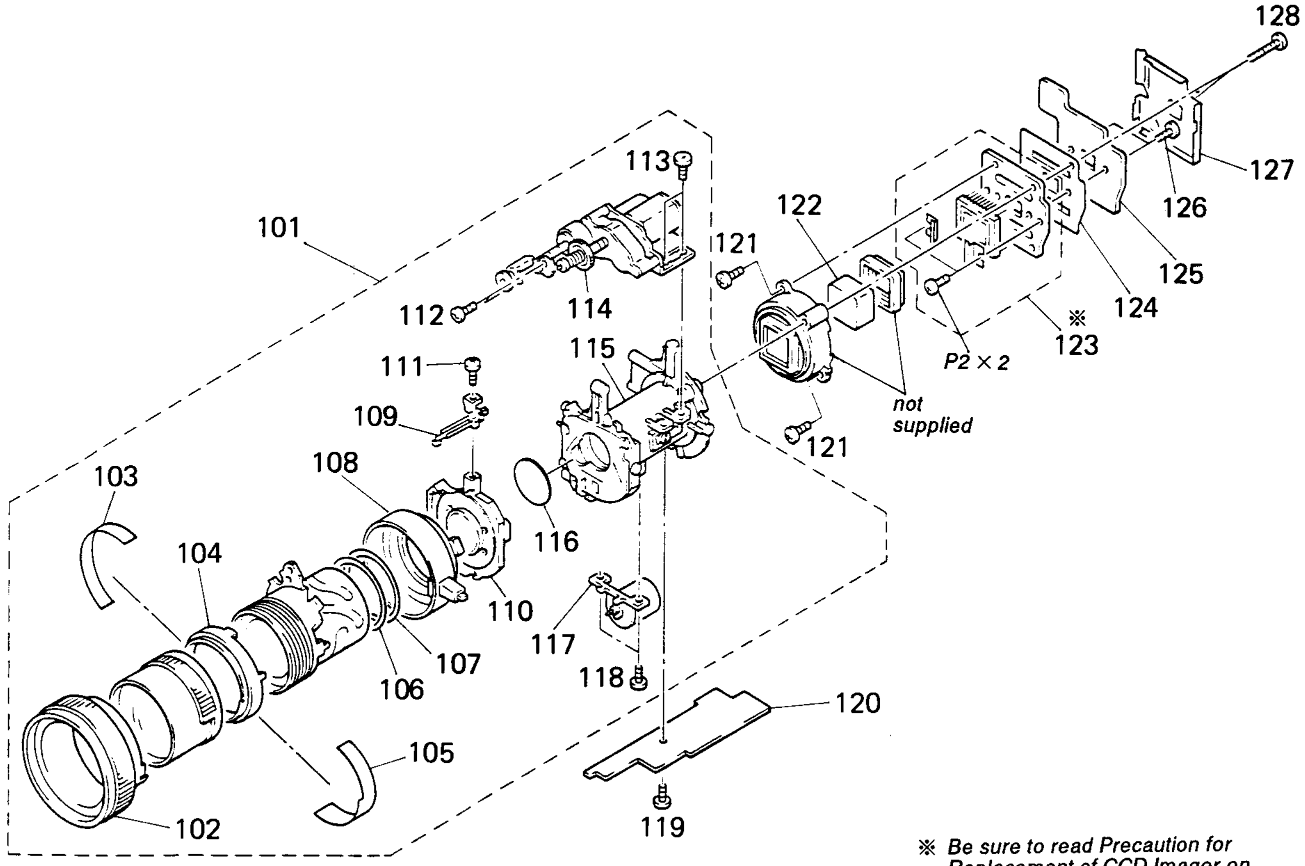
5-2. CHASSIS ASSEMBLY



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
51	*A-7062-100-A	VF-15P BOARD, COMPLETE	52-54	61	A-7068-166-A	DT-74D BOARD, COMPLETE (HIC)	
52	⚠.1-540-019-21	SOCKET ASSY, CRT (W901)		62	*3-736-320-02	CASE (LOWER), VC SHIELD	
53	*1-626-952-22	TL-23P BOARD		63	3-719-601-01	SCREW (B2X5), TAPPING	
54	*1-626-951-21	TL-22P BOARD		64	*A-7062-104-A	TI-20P BOARD, COMPLETE	
55	X-3724-524-1	COVER ASSY (C), CRT		65	*A-7062-105-A	IN-25 BOARD, COMPLETE	
56	⚠.1-452-482-11	CRT ASSY (M91JYZ60WB) (V901)		66	⚠.1-466-250-11	TRANSFORMER UNIT	
57	*3-741-225-01	FRAME, EVF		67	*1-633-904-11	AG-2 BOARD	
58	3-741-234-01	COVER, EVF		68	*A-7071-091-A	MA-38P BOARD, COMPLETE	
59	*3-741-217-01	CASE (UPPER), SHIELD, VC		69	*A-7052-103-A	DI-24P BOARD, COMPLETE	
60	*A-7062-102-A	VC-66P BOARD, COMPLETE	61, 69	70	*3-741-250-01	PLATE, SHIELD, FCC	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

5-3. LENS ASSEMBLY


128
127
126
125
124
※ 123
P2 × 2
not supplied
122
121
121
113
101
112
114
115
111
109
103
108
116
104
110
117
107
106
118
120
105
102
119

※ *Be sure to read Precaution for Replacement of CCD Imager on page 67 when replacing the CCD Imager.*

No.	Part No.	Description	Remark
101	1-547-335-31	LENS, ZOOM (VCL-1106XA)	102-118
102	3-707-661-01	RING UNIT, F	
103	7-632-701-38	TAPE, DISTANCE SCALE POSITION	
104	3-707-656-01	RING, (F) SCALE	
105	3-707-657-01	TAPE, DISTANCE SCALE FITTING	
106	3-707-744-01	SPRING	
107	3-707-743-01	WASHER	
108	3-707-745-01	RING ASSY, ZOOM	
109	3-707-662-01	SW ASSY, LEAF (FOCUS END) (S901)	
110	3-707-741-01	ASSY, MIDWAY FRAME	
111	3-707-664-01	SCREW, (B) 2P 1.7X4.5C	
112	3-707-666-01	SCREW, (B) 3P 1.7X2.8C	
113	3-707-663-01	SCREW, FITTING	
114	3-707-659-01	MOTOR ASSY, AF/Z GEAR (FOCUS/ZOOM)(M905)	
115	3-707-742-01	ASSY, REAR	
116	1-547-394-11	FILTER, OPTICAL (PN-02-02)	
117	3-707-660-01	METER ASSY, EE (IRIS) (M904)	
118	3-707-665-01	SCREW, (B) 3P 1.7X4C	
119	3-719-601-01	SCREW (B2X5), TAPPING	
120	*A-7061-883-A	LD-20P BOARD, COMPLETE	
121	3-738-519-01	SCREW (M2X3), +B	
122	1-547-393-11	FILTER BLOCK, OPTICAL (OFB-02-G)	
123	A-7091-132-A	CCD IMAGER ASSY (ICX027BK-1) (IC901)	
124	*3-725-180-01	SHEET, INSULATING, CCD HOLDER	
125	*A-7070-973-A	CD-19P BOARD, COMPLETE	
126	3-713-786-51	SCREW (M2X3)	
127	*3-741-216-01	CASE, SHIELD, CCD	
128	3-335-640-51	SCREW (M2X16)	

LD-20P

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description		Remark
	*A-7061-883-A	LD-20P BOARD, COMPLETE ************************		
		CAPACITOR		
C701	1-135-155-21	TANTAL. CHIP 4.7MF	20%	16V
C702	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C703	1-164-227-11	CERAMIC CHIP 0.022MF	10%	25V
C704	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V
C705	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C707	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C708	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C709	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C710	1-135-160-21	TANTAL. CHIP 15MF	20%	16V
C711	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C712	1-162-638-11	CERAMIC CHIP 1MF		16V
C713	1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V
C714	1-162-637-11	CERAMIC CHIP 0.47MF		16V
C715	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C716	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C717	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C718	1-162-966-11	CERAMIC CHIP 0.0022MF	10%	50V
C719	1-162-966-11	CERAMIC CHIP 0.0022MF	10%	50V
C720	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C721	1-162-968-11	CERAMIC CHIP 0.0047MF	10%	50V
		CONNECTOR		
CN701	1-568-336-11	CONNECTOR, BOARD TO BOARD 20P		
CN702	1-566-540-11	CONNECTOR, FPC (NON ZIF) 8P		
CN703	*1-565-543-11	PIN, CONNECTOR (PC BOARD) 4P		
CN704	*1-565-542-21	PIN, CONNECTOR (PC BOARD) 3P		
CN705	*1-565-542-11	PIN, CONNECTOR (PC BOARD) 3P		
		DIODE		
D701	8-719-404-46	DIODE MA110		
		IC		
IC701	8-759-500-11	IC MM1036XFF		
IC702	8-759-100-94	IC UPC358G2		
IC703	8-759-030-35	IC MPC1725M		
IC704	8-759-981-82	IC RC3414M		
		COIL		
L701	1-410-381-11	INDUCTOR CHIP 10UH		
		IC LINK		
PS701⚠	1-532-605-00	LINK, IC		
		TRANSISTOR		
Q701	8-729-402-78	TRANSISTOR XN6401		
Q702	8-729-907-00	TRANSISTOR DTC114EU		
Q703	8-729-402-42	TRANSISTOR UN5213		
Q704	8-729-402-78	TRANSISTOR XN6401		
Q705	8-729-805-25	TRANSISTOR 2SB1121		

Ref.No	Part No.	Description			Remark
Q706	8-729-905-35	TRANSISTOR 2SC4081			
Q707	8-729-905-15	TRANSISTOR DTC144WU			
Q708	8-729-402-84	TRANSISTOR XN4601			
Q709	8-729-402-84	TRANSISTOR XN4601			
		RESISTOR			
R701	1-216-298-00	METAL GLAZE	2.2	5%	1/10W
R702	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R703	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R704	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R705	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R706	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R707	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R708	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R709	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R710	1-216-298-00	METAL GLAZE	2.2	5%	1/10W
R711	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R712	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R713	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R714	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R715	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R717	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R718	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R719	1-216-309-00	METAL GLAZE	5.6	5%	1/10W
R720	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R721	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R722	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R723	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R724	1-216-809-11	METAL GLAZE	100	5%	1/16W
R725	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R726	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R730	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R731	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R732	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R733	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R734	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R739	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R740	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R741	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R742	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
		NETWORK RESISTOR			
RB701	1-236-424-11	NETWORK, RES 10K			
		VARIABLE RESISTOR			
RV701	1-238-094-11	RES, ADJ CERMET 220K			
		FLEXIBLE BOARD			
W701	1-630-595-11	FP-187 FLEXIBLE BOARD			

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Ref.No	Part No.	Description			Remark
	*A-7062-100-A	VF-15P BOARD, COMPLETE ************************			
		CAPACITOR			
C901	1-124-442-00	ELECT	330MF	20%	6.3V
C903	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C904	1-126-160-11	ELECT	1MF	20%	50V
C905	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C906	1-131-381-00	TANTALUM	47MF	10%	6.3V
C907	1-162-638-11	CERAMIC CHIP	1MF		16V
C908	1-136-165-00	FILM	0.1MF	5%	50V
C909	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C910	1-124-587-11	ELECT	220MF	20%	6.3V
C911	1-163-205-00	CERAMIC CHIP	0.001MF	10%	50V
C912	⚠.1-162-625-11	CERAMIC CHIP	0.0047MF	5%	50V
C913	⚠.1-162-625-11	CERAMIC CHIP	0.0047MF	5%	50V
C914	⚠.1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V
C915	1-126-090-11	ELECT	82MF	20%	10V
C916	1-126-094-11	ELECT	4.7MF	20%	35V
C918	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C919	1-102-038-00	CERAMIC	0.001MF		500V
		CONNECTOR			
CN902	*1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P			
CN903	*1-566-195-21	PIN, CONNECTOR (PC BOARD) 2P			
		DIODE			
D903	8-719-400-20	DIODE MA152WA			
		IC			
IC901	8-759-420-01	IC AN2512S			
		COIL			
L901	1-410-831-21	INDUCTOR	82UH		
L902	1-408-976-21	INDUCTOR	33UH		
L903	⚠.1-459-858-11	COIL, FERRITE (HLC)			
		TRANSISTOR			
Q903	8-729-216-32	TRANSISTOR 2SA1163G			
Q904	8-729-100-66	TRANSISTOR 2SC1623			
Q905	8-729-106-68	TRANSISTOR 2SD1615A-GP			
		RESISTOR			
R903	1-216-041-00	METAL GLAZE	470	5%	1/10W
R905	1-216-007-00	METAL GLAZE	18	5%	1/10W
R906	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R908	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R909	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R910	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R911	1-216-011-00	METAL GLAZE	27	5%	1/10W
R912	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R913	1-216-107-00	METAL GLAZE	270K	1%	1/10W

Ref.No	Part No.	Description			Remark
R914	1-216-025-00	METAL GLAZE	100	5%	1/10W
R915	1-216-306-11	METAL GLAZE	3.9	5%	1/10W
R917	1-216-047-00	METAL GLAZE	820	5%	1/10W
R918	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R919	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R920	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R921	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R922	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R923	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R924	1-216-131-11	METAL GLAZE	2.7M	5%	1/10W
R925	1-216-131-11	METAL GLAZE	2.7M	5%	1/10W
R926	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R927	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R928	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R929	1-216-047-00	METAL GLAZE	820	5%	1/10W
R930	1-216-041-00	METAL GLAZE	470	5%	1/10W
R931	1-216-041-00	METAL GLAZE	470	5%	1/10W
R932	1-216-047-00	METAL GLAZE	820	5%	1/10W
R933	1-216-121-00	METAL GLAZE	1M	5%	1/10W
		VARIABLE RESISTOR			
RV901	1-230-873-11	RES, ADJ, METAL GRAZE 47K			
RV902	1-230-866-11	RES, ADJ, METAL GRAZE 470			
RV904	1-228-762-00	RES, ADJ, METAL GLAZE 1M			
		TRANSFORMER			
T901	⚠.1-439-431-21	TRANSFORMER ASSY, FLYBACK			
		THERMISTOR			
TH901	1-807-938-11	THERMISTOR			
		CONNECTOR			
W901	1-540-019-21	SOCKET ASSY, CRT			

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Ref.No	Part No.	Description			Remark
	*1-626-951-21	TL-22P BOARD *************			
		DIODE			
D950	8-719-941-34	LED GL1HD51			
		RESISTOR			
R950	1-216-037-00	METAL GLAZE	330	5%	1/10W

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Ref.No	Part No.	Description			Remark
	*1-626-952-22	TL-23P BOARD *************			
		DIODE			
D955	8-719-941-34	LED GL1HD51			

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description		Remark
	*A-7062-102-A	VC-66P BOARD, COMPLETE ************************ (Including DI-24P BOARD)		
	A-7068-166-A	DT-74D BOARD, COMPLETE (HIC)		
		CAPACITOR		
C102	1-135-162-21	TANTAL. CHIP 33MF	20%	6.3V
C103	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C104	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C105	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V
C107	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C108	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C109	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C110	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C111	1-162-941-11	CERAMIC CHIP 10PF	0.5PF	50V
C131	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C132	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C133	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C134	1-135-076-21	TANTAL. CHIP 1MF	20%	35V
C135	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C136	1-135-079-21	TANTAL. CHIP 3.3MF	20%	35V
C137	1-135-076-21	TANTAL. CHIP 1MF	20%	35V
C145	1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V
C146	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C150	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C151	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C152	1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V
C153	1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V
C154	1-162-919-11	CERAMIC CHIP 22PF	5%	50V
C158	1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V
C181	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C182	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C183	1-162-950-11	CERAMIC CHIP 56PF	5%	50V
C184	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C185	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C186	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C187	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C188	1-162-945-11	CERAMIC CHIP 22PF	5%	50V
C189	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C190	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C191	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C192	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C193	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C194	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C195	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C196	1-164-217-11	CERAMIC CHIP 150PF	0.25PF	50V
C197	1-162-922-11	CERAMIC CHIP 39PF	5%	50V
C198	1-162-957-11	CERAMIC CHIP 220PF	5%	50V
C199	1-162-925-11	CERAMIC CHIP 68PF	5%	50V
C200	1-162-919-11	CERAMIC CHIP 22PF	5%	50V
C201	1-162-945-11	CERAMIC CHIP 22PF	5%	50V
C202	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C203	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C204	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C205	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C206	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C207	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C208	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C209	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C210	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C211	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C212	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C213	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C214	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C215	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C216	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C217	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C219	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C220	1-162-638-11	CERAMIC CHIP 1MF		16V
C221	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C222	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C223	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C224	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C225	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C227	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C228	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C229	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C230	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C231	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C232	1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V
C233	1-162-942-11	CERAMIC CHIP 12PF	5%	50V
C234	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C235	1-162-638-11	CERAMIC CHIP 1MF		16V
C236	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C237	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C238	1-162-928-11	CERAMIC CHIP 120PF	5%	50V
C239	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C241	1-162-956-11	CERAMIC CHIP 180PF	5%	50V
C252	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V
C253	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C254	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C255	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C256	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C257	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C259	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C260	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C261	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C262	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C263	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C264	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C265	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C266	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C267	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C268	1-135-170-21	TANTAL. CHIP 6.8MF	20%	4V
C269	1-135-170-21	TANTAL. CHIP 6.8MF	20%	4V

When indicating parts by reference number, please include the board name.

VC-66P

Ref.No	Part No.	Description		Remark
C270	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C271	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C272	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C273	1-162-953-11	CERAMIC CHIP 100PF	5%	50V
C274	1-162-955-11	CERAMIC CHIP 150PF	5%	50V
C275	1-162-946-11	CERAMIC CHIP 27PF	5%	50V
C276	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C277	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C278	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C279	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C281	1-162-953-11	CERAMIC CHIP 100PF	5%	50V
C282	1-162-955-11	CERAMIC CHIP 150PF	5%	50V
C283	1-162-946-11	CERAMIC CHIP 27PF	5%	50V
C301	1-162-943-11	CERAMIC CHIP 15PF	5%	50V
C303	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C304	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C305	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C306	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C307	1-162-915-11	CERAMIC CHIP 10PF	0.5PF	50V
C308	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C309	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C310	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C311	1-162-915-11	CERAMIC CHIP 10PF	0.5PF	50V
C312	1-164-360-11	CERAMIC CHIP 0.1MF		16V
C313	1-162-921-11	CERAMIC CHIP 33PF	5%	50V
C314	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C315	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C316	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C317	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C318	1-124-566-11	ELECT 120MF	20%	6.3V
C319	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C320	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V
C321	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C322	1-162-638-11	CERAMIC CHIP 1MF		16V
C323	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C324	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C325	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C326	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C327	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C330	1-162-962-11	CERAMIC CHIP 470PF	10%	50V
C331	1-162-926-11	CERAMIC CHIP 82PF	5%	50V
C332	1-162-919-11	CERAMIC CHIP 22PF	5%	50V
C333	1-162-916-11	CERAMIC CHIP 12PF	5%	50V
C334	1-135-161-21	TANTAL. CHIP 22MF	20%	10V
C336	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C337	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C338	1-162-974-11	CERAMIC CHIP 0.01MF		50V
C339	1-135-181-21	TANTAL. CHIP 4.7MF	20%	6.3V
C340	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C341	1-162-949-11	CERAMIC CHIP 47PF	5%	50V
C350	1-135-076-21	TANTAL. CHIP 1MF	20%	35V
C351	1-135-163-21	TANTAL. CHIP 47MF	20%	4V
C380	1-163-115-00	CERAMIC CHIP 82PF	5%	50V

Ref.No	Part No.	Description		Remark
C404	1-162-966-11	CERAMIC CHIP 0.0022MF	10%	50V
C406	1-162-949-11	CERAMIC CHIP 47PF	5%	50V
C408	1-162-949-11	CERAMIC CHIP 47PF	5%	50V
C409	1-162-949-11	CERAMIC CHIP 47PF	5%	50V
C415	1-162-945-11	CERAMIC CHIP 22PF	5%	50V
C416	1-162-949-11	CERAMIC CHIP 47PF	5%	50V
C417	1-162-927-11	CERAMIC CHIP 100PF	5%	50V

CONNECTOR

CN302	1-568-333-11	CONNECTOR, BOARD TO BOARD 14P

TRIMMER

CT142	1-141-333-11	CAP, CHIP TRIMMER 30PF

DIODE

D101	8-719-404-46	DIODE MA110
D102	8-719-404-46	DIODE MA110
D131	8-719-404-32	DIODE MA141WA
D132	8-719-404-46	DIODE MA110
D133	8-719-404-46	DIODE MA110
D134	8-719-404-52	DIODE MA143
D142	8-719-949-48	DIODE 1T32-2
D301	8-719-404-46	DIODE MA110

FILTER

FL181	1-236-266-11	FILTER, LOW PASS (YH)
FL182	1-236-267-11	FILTER, LOW PASS (YDL)
FL301	1-236-192-11	FILTER, LOW PASS
FL303	1-415-695-11	DL, LC
FL304	1-236-265-11	FILTER, BAND PASS

IC

IC141	8-752-329-55	IC CXD1209Q
IC181	8-752-034-17	IC CXA1338R
IC182	8-752-330-15	IC CXL1503N
IC183	8-752-331-32	IC CXL1504N
IC251	8-752-034-21	IC CXA1339R
IC252	8-759-946-00	IC MB88341PFV
IC253	8-752-032-48	IC CXA1157M
IC301	8-752-033-34	IC CXA1072R
IC302	8-759-946-00	IC MB88341PFV
IC303	8-759-101-12	IC UPC311G2-E1

COIL

L101	1-412-031-11	INDUCTOR CHIP 47UH
L102	1-412-029-11	INDUCTOR CHIP 10UH
L142	1-410-381-11	INDUCTOR CHIP 10UH
L143	1-410-381-11	INDUCTOR CHIP 10UH
L181	1-410-381-11	INDUCTOR CHIP 10UH
L182	1-410-381-11	INDUCTOR CHIP 10UH
L183	1-410-381-11	INDUCTOR CHIP 10UH
L251	1-410-381-11	INDUCTOR CHIP 10UH
L301	1-410-381-11	INDUCTOR CHIP 10UH

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
L302	1-410-657-21	INDUCTOR CHIP 180UH	
L303	1-410-204-31	INDUCTOR CHIP 10UH	
L402	1-410-192-51	INDUCTOR CHIP 1UH	
L403	1-412-026-11	INDUCTOR CHIP 1UH	
L404	1-410-192-51	INDUCTOR CHIP 1UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q101	8-729-402-84	TRANSISTOR XN4601	
Q102	8-729-402-84	TRANSISTOR XN4601	
Q103	8-729-402-84	TRANSISTOR XN4601	
Q104	8-729-402-84	TRANSISTOR XN4601	
Q105	8-729-402-84	TRANSISTOR XN4601	
Q106	8-729-905-23	TRANSISTOR 2SA1576	
Q107	8-729-402-84	TRANSISTOR XN4601	
Q131	8-729-421-23	TRANSISTOR XN1501	
Q132	8-729-905-35	TRANSISTOR 2SC4081	
Q133	8-729-905-35	TRANSISTOR 2SC4081	
Q134	8-729-905-23	TRANSISTOR 2SA1576	
Q141	8-729-117-72	TRANSISTOR 2SC4178	
Q142	8-729-905-35	TRANSISTOR 2SC4081	
Q181	8-729-905-35	TRANSISTOR 2SC4081	
Q182	8-729-402-78	TRANSISTOR XN6401	
Q183	8-729-905-23	TRANSISTOR 2SA1576	
Q184	8-729-905-35	TRANSISTOR 2SC4081	
Q185	8-729-421-23	TRANSISTOR XN1501	
Q186	8-729-905-23	TRANSISTOR 2SA1576	
Q187	8-729-905-23	TRANSISTOR 2SA1576	
Q188	8-729-905-35	TRANSISTOR 2SC4081	
Q189	8-729-905-23	TRANSISTOR 2SA1576	
Q190	8-729-905-35	TRANSISTOR 2SC4081	
Q191	8-729-402-78	TRANSISTOR XN6401	
Q192	8-729-402-78	TRANSISTOR XN6401	
Q193	8-729-402-78	TRANSISTOR XN6401	
Q194	8-729-905-23	TRANSISTOR 2SA1576	
Q195	8-729-905-23	TRANSISTOR 2SA1576	
Q196	8-729-905-35	TRANSISTOR 2SC4081	
Q254	8-729-402-84	TRANSISTOR XN4601	
Q255	8-729-905-35	TRANSISTOR 2SC4081	
Q256	8-729-402-84	TRANSISTOR XN4601	
Q257	8-729-905-35	TRANSISTOR 2SC4081	
Q303	8-729-905-23	TRANSISTOR 2SA1576	
Q304	8-729-905-35	TRANSISTOR 2SC4081	
Q305	8-729-905-35	TRANSISTOR 2SC4081	
Q306	8-729-402-84	TRANSISTOR XN4601	
Q307	8-729-905-35	TRANSISTOR 2SC4081	
Q308	8-729-905-35	TRANSISTOR 2SC4081	
Q309	8-729-905-23	TRANSISTOR 2SA1576	
Q310	8-729-402-78	TRANSISTOR XN6401	
Q311	8-729-402-19	TRANSISTOR XN6501	

RESISTOR

Ref.No	Part No.	Description	Remark
R101	1-216-841-11	METAL GLAZE 47K 5% 1/16W	
R102	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R103	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R104	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R105	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R107	1-216-820-11	METAL GLAZE 820 5% 1/16W	
R108	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R109	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R111	1-216-822-11	METAL GLAZE 1.2K 5% 1/16W	
R112	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R113	1-216-832-11	METAL GLAZE 8.2K 5% 1/16W	
R114	1-216-068-00	METAL GLAZE 6.2K 5% 1/10W	
R115	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R116	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R117	1-216-840-11	METAL GLAZE 39K 5% 1/16W	
R118	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R119	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R120	1-216-841-11	METAL GLAZE 47K 5% 1/16W	
R121	1-216-842-11	METAL GLAZE 56K 5% 1/16W	
R122	1-216-843-11	METAL GLAZE 68K 5% 1/16W	
R123	1-216-832-11	METAL GLAZE 8.2K 5% 1/16W	
R124	1-216-827-11	METAL GLAZE 3.3K 5% 1/16W	
R125	1-216-841-11	METAL GLAZE 47K 5% 1/16W	
R126	1-216-809-11	METAL GLAZE 100 5% 1/16W	
R127	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R128	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R129	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R131	1-216-836-11	METAL GLAZE 18K 5% 1/16W	
R132	1-216-844-11	METAL GLAZE 82K 5% 1/16W	
R133	1-216-844-11	METAL GLAZE 82K 5% 1/16W	
R134	1-216-850-11	METAL GLAZE 270K 5% 1/16W	
R135	1-216-830-11	METAL GLAZE 5.6K 5% 1/16W	
R136	1-216-835-11	METAL GLAZE 15K 5% 1/16W	
R137	1-216-857-11	METAL GLAZE 1M 5% 1/16W	
R138	1-216-844-11	METAL GLAZE 82K 5% 1/16W	
R139	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R140	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R145	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R147	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R148	1-216-809-11	METAL GLAZE 100 5% 1/16W	
R149	1-216-843-11	METAL GLAZE 68K 5% 1/16W	
R150	1-216-857-11	METAL GLAZE 1M 5% 1/16W	
R151	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R152	1-216-845-11	METAL GLAZE 100K 5% 1/16W	
R153	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R154	1-216-809-11	METAL GLAZE 100 5% 1/16W	
R155	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R156	1-216-823-11	METAL GLAZE 1.5K 5% 1/16W	
R160	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R162	1-216-845-11	METAL GLAZE 100K 5% 1/16W	
R163	1-216-811-11	METAL GLAZE 150 5% 1/16W	
R165	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R166	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R181	1-216-072-00	METAL GLAZE 9.1K 5% 1/10W	
R182	1-216-822-11	METAL GLAZE 1.2K 5% 1/16W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R183	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R184	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R185	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R186	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R187	1-216-824-11	METAL GLAZE 1.8K 5% 1/16W	
R188	1-216-812-11	METAL GLAZE 180 5% 1/16W	
R189	1-216-820-11	METAL GLAZE 820 5% 1/16W	
R190	1-216-824-11	METAL GLAZE 1.8K 5% 1/16W	
R192	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R193	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R194	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R195	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R196	1-216-840-11	METAL GLAZE 39K 5% 1/16W	
R197	1-216-839-11	METAL GLAZE 33K 5% 1/16W	
R198	1-216-841-11	METAL GLAZE 47K 5% 1/16W	
R199	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R200	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R201	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R202	1-216-823-11	METAL GLAZE 1.5K 5% 1/16W	
R203	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R204	1-216-836-11	METAL GLAZE 18K 5% 1/16W	
R205	1-216-839-11	METAL GLAZE 33K 5% 1/16W	
R206	1-216-839-11	METAL GLAZE 33K 5% 1/16W	
R207	1-216-839-11	METAL GLAZE 33K 5% 1/16W	
R208	1-216-842-11	METAL GLAZE 56K 5% 1/16W	
R209	1-216-840-11	METAL GLAZE 39K 5% 1/16W	
R210	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R211	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R212	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R213	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R214	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R215	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R218	1-216-994-11	METAL GLAZE 13K 5% 1/16W	
R219	1-216-836-11	METAL GLAZE 18K 5% 1/16W	
R220	1-216-835-11	METAL GLAZE 15K 5% 1/16W	
R221	1-216-834-11	METAL GLAZE 12K 5% 1/16W	
R222	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R223	1-216-857-11	METAL GLAZE 1M 5% 1/16W	
R224	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R225	1-216-832-11	METAL GLAZE 8.2K 5% 1/16W	
R226	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R227	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R229	1-216-828-11	METAL GLAZE 3.9K 5% 1/16W	
R230	1-216-817-11	METAL GLAZE 470 5% 1/16W	
R231	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R233	1-216-824-11	METAL GLAZE 1.8K 5% 1/16W	
R252	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R259	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R265	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R266	1-216-836-11	METAL GLAZE 18K 5% 1/16W	
R268	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R269	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R270	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R271	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R272	1-216-827-11	METAL GLAZE 3.3K 5% 1/16W	
R273	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R274	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R275	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R276	1-216-824-11	METAL GLAZE 1.8K 5% 1/16W	
R277	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R278	1-216-824-11	METAL GLAZE 1.8K 5% 1/16W	
R279	1-216-838-11	METAL GLAZE 27K 5% 1/16W	
R280	1-216-840-11	METAL GLAZE 39K 5% 1/16W	
R281	1-216-835-11	METAL GLAZE 15K 5% 1/16W	
R282	1-216-840-11	METAL GLAZE 39K 5% 1/16W	
R283	1-216-832-11	METAL GLAZE 8.2K 5% 1/16W	
R284	1-216-840-11	METAL GLAZE 39K 5% 1/16W	
R285	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R301	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R302	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R303	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R305	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R309	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R310	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R314	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R315	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R319	1-216-838-11	METAL GLAZE 27K 5% 1/16W	
R320	1-216-839-11	METAL GLAZE 33K 5% 1/16W	
R322	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R323	1-216-830-11	METAL GLAZE 5.6K 5% 1/16W	
R324	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R325	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R326	1-216-840-11	METAL GLAZE 39K 5% 1/16W	
R327	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R328	1-216-817-11	METAL GLAZE 470 5% 1/16W	
R329	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R330	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R331	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R332	1-216-824-11	METAL GLAZE 1.8K 5% 1/16W	
R333	1-216-827-11	METAL GLAZE 3.3K 5% 1/16W	
R334	1-216-841-11	METAL GLAZE 47K 5% 1/16W	
R335	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R336	1-216-828-11	METAL GLAZE 3.9K 5% 1/16W	
R337	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R341	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R342	1-216-828-11	METAL GLAZE 3.9K 5% 1/16W	
R343	1-216-841-11	METAL GLAZE 47K 5% 1/16W	
R344	1-216-842-11	METAL GLAZE 56K 5% 1/16W	
R345	1-216-842-11	METAL GLAZE 56K 5% 1/16W	
R346	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R347	1-216-841-11	METAL GLAZE 47K 5% 1/16W	
R348	1-216-841-11	METAL GLAZE 47K 5% 1/16W	
R349	1-216-827-11	METAL GLAZE 3.3K 5% 1/16W	
R350	1-216-845-11	METAL GLAZE 100K 5% 1/16W	
R351	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R352	1-216-835-11	METAL GLAZE 15K 5% 1/16W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R353	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R354	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R355	1-216-822-11	METAL GLAZE 1.2K 5% 1/16W	
R356	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R357	1-216-838-11	METAL GLAZE 27K 5% 1/16W	
R358	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R359	1-216-826-11	METAL GLAZE 2.7K 5% 1/16W	
R360	1-216-827-11	METAL GLAZE 3.3K 5% 1/16W	
R361	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R362	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R401	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R402	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R403	1-216-827-11	METAL GLAZE 3.3K 5% 1/16W	
R404	1-216-843-11	METAL GLAZE 68K 5% 1/16W	
R405	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R406	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R407	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R408	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R409	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R410	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R411	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R413	1-216-813-11	METAL GLAZE 220 5% 1/16W	
R415	1-216-813-11	METAL GLAZE 220 5% 1/16W	
R416	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R417	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R418	1-216-813-11	METAL GLAZE 220 5% 1/16W	
R419	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R420	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R422	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R423	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R424	1-216-830-11	METAL GLAZE 5.6K 5% 1/16W	
R425	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R426	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R427	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R428	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R429	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R430	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R431	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R433	1-216-813-11	METAL GLAZE 220 5% 1/16W	
R434	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R435	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R436	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R437	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R438	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R439	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R441	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R442	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R443	1-216-864-11	METAL GLAZE 0 5% 1/16W	

NETWORK RESISTOR

Ref.No	Part No.	Description	Remark
RB101	1-236-436-11	NETWORK, RES 100K	
RB141	1-236-416-11	NETWORK, RES 2.2K	
RB181	1-236-414-11	NETWORK, RES 1.5K	
RB182	1-236-412-11	NETWORK, RES 1.0K	
RB183	1-236-423-11	NETWORK, RES 8.2K	
RB184	1-236-423-11	NETWORK, RES 8.2K	
RB251	1-236-428-11	NETWORK, RES 22K	
RB252	1-236-412-11	NETWORK, RES 1.0K	
RB253	1-236-412-11	NETWORK, RES 1.0K	
RB301	1-236-412-11	NETWORK, RES 1.0K	

CRYSTAL

Ref.No	Part No.	Description	Remark
X101	1-577-119-11	OSCILLATOR, CRYSTAL	
X141	1-567-733-11	VIBRATOR, CRYSTAL (17MHz)	

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*A-7052-103-A DI-24P BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description			Remark
C362	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V	
C363	1-135-181-21	TANTAL. CHIP 4.7MF	20%	6.3V	
C364	1-135-181-21	TANTAL. CHIP 4.7MF	20%	6.3V	
C365	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V	
C366	1-135-180-21	TANTAL. CHIP 3.3MF	20%	6.3V	
C367	1-135-180-21	TANTAL. CHIP 3.3MF	20%	6.3V	
C368	1-135-180-21	TANTAL. CHIP 3.3MF	20%	6.3V	
C369	1-162-974-11	CERAMIC CHIP 0.01MF		50V	
C370	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V	
C371	1-162-974-11	CERAMIC CHIP 0.01MF		50V	
C372	1-135-072-21	TANTAL. CHIP 0.22MF	20%	35V	
C373	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V	
C374	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V	
C379	1-135-145-11	TANTAL. CHIP 0.47MF	20%	35V	
C561	1-162-921-11	CERAMIC CHIP 33PF	5%	50V	
C562	1-162-916-11	CERAMIC CHIP 12PF	5%	50V	
C563	1-162-638-11	CERAMIC CHIP 1MF		16V	
C565	1-135-177-21	TANTAL. CHIP 1MF	20%	20V	
C566	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V	
C567	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V	
C569	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V	
C570	1-164-156-11	CERAMIC CHIP 0.1MF		25V	
C571	1-164-227-11	CERAMIC CHIP 0.022MF	10%	25V	
C572	1-162-927-11	CERAMIC CHIP 100PF	5%	50V	
C611	1-162-974-11	CERAMIC CHIP 0.01MF		50V	
C612	1-162-974-11	CERAMIC CHIP 0.01MF		50V	
C613	1-164-156-11	CERAMIC CHIP 0.1MF		25V	
C614	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V	
C616	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V	
C617	1-162-974-11	CERAMIC CHIP 0.01MF		50V	
C618	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V	
C619	1-164-156-11	CERAMIC CHIP 0.1MF		25V	
C620	1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V	
C621	1-162-941-11	CERAMIC CHIP 10PF	0.5PF	50V	
C622	1-162-974-11	CERAMIC CHIP 0.01MF		50V	

When indicating parts by reference number, please include the board name.

DI-24P

Ref.No	Part No.	Description		Remark
C623	1-162-957-11	CERAMIC CHIP 220PF	5%	50V
C624	1-162-957-11	CERAMIC CHIP 220PF	5%	50V
C625	1-162-928-11	CERAMIC CHIP 120PF	5%	50V
C626	1-162-926-11	CERAMIC CHIP 82PF	5%	50V
C627	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C628	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C629	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C631	1-162-966-11	CERAMIC CHIP 0.0022MF	10%	50V
C632	1-135-180-21	TANTAL. CHIP 3.3MF	20%	6.3V
C633	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C634	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C636	1-162-637-11	CERAMIC CHIP 0.47MF		16V
C637	1-135-180-21	TANTAL. CHIP 3.3MF	20%	6.3V
C638	1-135-177-21	TANTAL. CHIP 1MF	20%	20V
C639	1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V
C640	1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V
C641	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C642	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V
C643	1-162-957-11	CERAMIC CHIP 220PF	5%	50V
C644	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C647	1-164-156-11	CERAMIC CHIP 0.1MF		25V
C648	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V

CONNECTOR

Ref.No	Part No.	Description
CN802	1-568-336-11	CONNECTOR, BOARD TO BOARD 20P
CN803	1-568-336-11	CONNECTOR, BOARD TO BOARD 20P
CN804	1-568-333-11	CONNECTOR, BOARD TO BOARD 14P
CN805	1-568-359-41	CONNECTOR, BOARD TO BOARD 20P

TRIMMER

Ref.No	Part No.	Description
CT561	1-141-368-11	CAP, CHIP TRIMMER 30PF

DIODE

Ref.No	Part No.	Description
D361	8-719-404-32	DIODE MA141WA
D362	8-719-404-46	DIODE MA110
D561	8-719-404-49	DIODE MA111
D562	8-719-420-51	DIODE MA729
D563	8-719-404-46	DIODE MA110
D566	8-719-420-51	DIODE MA729
D610	8-719-404-46	DIODE MA110

FILTER

Ref.No	Part No.	Description
FL610	1-236-209-11	FILTER, LOW PASS

IC

Ref.No	Part No.	Description
IC361	8-759-032-00	IC MC68HC05N4-SC406662
IC362	8-759-937-56	IC S-8054ALB-LM-S
IC363	8-759-106-23	IC UPD4066BG
IC364	8-759-100-95	IC UPC324G2
IC561	8-759-148-21	IC UPD7508BGB-514
IC610	8-752-329-47	IC CXD1172M
IC611	8-759-946-00	IC MB88341PFV
IC612	8-752-326-18	IC CXD1204R
IC613	8-759-036-12	IC MC68HC05C4-SC411573
IC614	8-759-940-45	IC S-8054HN-CB
IC615	8-759-100-94	IC UPC358G2

COIL

Ref.No	Part No.	Description	
L361	1-410-381-11	INDUCTOR CHIP	10UH
L362	1-410-381-11	INDUCTOR CHIP	10UH
L561	1-410-369-11	INDUCTOR CHIP	1UH
L610	1-410-381-11	INDUCTOR CHIP	10UH
L611	1-410-381-11	INDUCTOR CHIP	10UH
L612	1-410-655-31	INDUCTOR CHIP	120UH

TRANSISTOR

Ref.No	Part No.	Description
Q361	8-729-403-07	TRANSISTOR XN1213
Q362	8-729-403-10	TRANSISTOR XN6215
Q363	8-729-905-35	TRANSISTOR 2SC4081
Q364	8-729-403-10	TRANSISTOR XN6215
Q365	8-729-402-78	TRANSISTOR XN6401
Q367	8-729-905-35	TRANSISTOR 2SC4081
Q368	8-729-403-10	TRANSISTOR XN6215
Q561	8-729-905-23	TRANSISTOR 2SA1576
Q562	8-729-403-24	TRANSISTOR XN4210
Q563	8-729-905-18	TRANSISTOR DTC144EU
Q564	8-729-921-08	TRANSISTOR DTC144TU
Q565	8-729-402-78	TRANSISTOR XN6401
Q566	8-729-402-19	TRANSISTOR XN6501
Q567	8-729-402-78	TRANSISTOR XN6401
Q568	8-729-109-44	TRANSISTOR 2SK94
Q569	8-729-905-23	TRANSISTOR 2SA1576
Q570	8-729-905-15	TRANSISTOR DTC144WU
Q571	8-729-920-39	TRANSISTOR IMT1US
Q572	8-729-805-25	TRANSISTOR 2SB1121
Q573	8-729-905-18	TRANSISTOR DTC144EU
Q574	8-729-905-23	TRANSISTOR 2SA1576
Q610	8-729-403-10	TRANSISTOR XN6215
Q611	8-729-402-84	TRANSISTOR XN4601
Q613	8-729-905-35	TRANSISTOR 2SC4081
Q614	8-729-905-35	TRANSISTOR 2SC4081
Q619	8-729-905-35	TRANSISTOR 2SC4081
Q620	8-729-905-35	TRANSISTOR 2SC4081
Q621	8-729-402-19	TRANSISTOR XN6501

RESISTOR

Ref.No	Part No.	Description			Remark
R338	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R339	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R364	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R365	1-216-864-11	METAL GLAZE	0	5%	1/16W
R366	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R367	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R368	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R369	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R370	1-216-837-11	METAL GLAZE	22K	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R371	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R372	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R373	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R374	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R375	1-216-840-11	METAL GLAZE	39K	5%	1/16W	
R376	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R377	1-216-847-11	METAL GLAZE	150K	5%	1/16W	
R378	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R382	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R383	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R384	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R385	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R386	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R387	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R561	1-216-849-11	METAL GLAZE	220K	5%	1/16W	
R562	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R563	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R564	1-216-851-11	METAL GLAZE	330K	5%	1/16W	
R566	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R567	1-216-857-11	METAL GLAZE	1M	5%	1/16W	
R568	1-216-097-00	METAL GLAZE	100K	1%	1/10W	
R569	1-216-852-11	METAL GLAZE	390K	5%	1/16W	
R570	1-216-857-11	METAL GLAZE	1M	5%	1/16W	
R571	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R572	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R573	1-216-851-11	METAL GLAZE	330K	5%	1/16W	
R574	1-216-809-11	METAL GLAZE	100	5%	1/16W	
R575	1-216-861-11	METAL GLAZE	2.2M	5%	1/16W	
R576	1-216-839-11	METAL GLAZE	33K	5%	1/16W	
R577	1-216-843-11	METAL GLAZE	68K	5%	1/16W	
R578	1-216-136-00	METAL GLAZE	2.7	5%	1/8W	
R579	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W	
R580	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W	
R581	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W	
R582	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R583	1-218-172-11	METAL GLAZE	680K	1%	1/10W	
R584	1-218-172-11	METAL GLAZE	680K	1%	1/10W	
R585	1-216-836-11	METAL GLAZE	18K	5%	1/16W	
R587	1-216-807-11	METAL GLAZE	68	5%	1/16W	
R589	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R611	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R613	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W	
R614	1-216-840-11	METAL GLAZE	39K	5%	1/16W	
R615	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W	
R616	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W	
R617	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R618	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R619	1-216-857-11	METAL GLAZE	1M	5%	1/16W	
R620	1-216-843-11	METAL GLAZE	68K	5%	1/16W	
R621	1-216-857-11	METAL GLAZE	1M	5%	1/16W	
R622	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R623	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R624	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	

Ref.No	Part No.	Description				Remark
R625	1-216-838-11	METAL GLAZE	27K	5%	1/16W	
R626	1-216-842-11	METAL GLAZE	56K	5%	1/16W	
R627	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R628	1-216-849-11	METAL GLAZE	220K	5%	1/16W	
R629	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W	
R630	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R631	1-216-844-11	METAL GLAZE	82K	5%	1/16W	
R632	1-216-819-11	METAL GLAZE	680	5%	1/16W	
R633	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W	
R634	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R635	1-216-853-11	METAL GLAZE	470K	5%	1/16W	
R636	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R638	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R639	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W	
R640	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W	
R641	1-216-818-11	METAL GLAZE	560	5%	1/16W	
R642	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R643	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R644	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R645	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W	
R647	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R648	1-216-809-11	METAL GLAZE	100	5%	1/16W	
R649	1-216-685-11	METAL CHIP	27K	0.50%	1/10W	
R650	1-216-675-11	METAL CHIP	10K	0.50%	1/10W	
R651	1-216-675-11	METAL CHIP	10K	0.50%	1/10W	
R653	1-216-840-11	METAL GLAZE	39K	5%	1/16W	
R654	1-216-815-11	METAL GLAZE	330	5%	1/16W	
R656	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W	
R657	1-216-818-11	METAL GLAZE	560	5%	1/16W	
R659	1-216-840-11	METAL GLAZE	39K	5%	1/16W	
R661	1-216-813-11	METAL GLAZE	220	5%	1/16W	
R662	1-216-813-11	METAL GLAZE	220	5%	1/16W	
R663	1-216-813-11	METAL GLAZE	220	5%	1/16W	
R664	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W	
R665	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W	
R669	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R671	1-216-833-11	METAL GLAZE	10K	5%	1/16W	

NETWORK RESISTOR

Ref.No	Part No.	Description		Remark
RB362	1-236-436-11	NETWORK, RES	100K	
RB363	1-236-424-11	NETWORK, RES	10K	
RB561	1-236-436-11	NETWORK, RES	100K	
RB562	1-236-436-11	NETWORK, RES	100K	
RB563	1-236-412-11	NETWORK, RES	1.0K	
RB564	1-236-436-11	NETWORK, RES	100K	
RB565	1-236-436-11	NETWORK, RES	100K	
RB566	1-236-436-11	NETWORK, RES	100K	
RB569	1-236-412-11	NETWORK, RES	1.0K	
RB573	1-236-412-11	NETWORK, RES	1.0K	
RB574	1-236-436-11	NETWORK, RES	100K	
RB575	1-236-436-11	NETWORK, RES	100K	
RB576	1-236-424-11	NETWORK, RES	10K	
RB577	1-236-424-11	NETWORK, RES	10K	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
RB611	1-236-424-11	NETWORK, RES 10K	
RB612	1-236-436-11	NETWORK, RES 100K	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV561	1-238-093-11	RES, ADJ CERMET 100K	

FLEXIBLE BOARD

Ref.No	Part No.	Description	Remark
W801	1-632-930-11	FP-243 FLEXIBLE BOARD	
W802	1-632-930-11	FP-243 FLEXIBLE BOARD	
W803	1-632-930-11	FP-243 FLEXIBLE BOARD	

CRYSTAL

Ref.No	Part No.	Description	Remark
X361	1-577-118-11	VIBRATOR, LITHIUM NIOBATE	
X561	1-527-997-21	VIBRATOR, CRYSTAL (32.768KHz)	

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*A-7062-104-A TI-20P BOARD, COMPLETE

CAPACITOR

Ref.No	Part No.	Description			Remark
C801	1-164-156-11	CERAMIC CHIP 0.1MF		25V	
C802	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V	
C804	1-162-913-11	CERAMIC CHIP 8PF	0.5PF	50V	
C805	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V	
C807	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V	
C808	1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V	
C810	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V	
C811	1-164-156-11	CERAMIC CHIP 0.1MF		25V	
C812	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V	
C813	1-162-949-11	CERAMIC CHIP 47PF	5%	50V	
C814	1-162-949-11	CERAMIC CHIP 47PF	5%	50V	
C815	1-162-949-11	CERAMIC CHIP 47PF	5%	50V	
C816	1-164-156-11	CERAMIC CHIP 0.1MF		25V	
C817	1-162-921-11	CERAMIC CHIP 33PF	5%	50V	
C818	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C819	1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN801	1-568-368-41	CONNECTOR, BOARD TO BOARD 20P	

TRIMMER

Ref.No	Part No.	Description	Remark
CT801	1-141-368-11	CAP, CHIP TRIMMER 30PF	
CT802	1-141-368-11	CAP, CHIP TRIMMER 30PF	

DIODE

Ref.No	Part No.	Description	Remark
D801	8-713-300-88	DIODE 1T33C-01	

IC

Ref.No	Part No.	Description	Remark
IC801	8-759-979-96	IC MB8464A-15LLPF	
IC802	8-759-140-26	IC UPD6145G-601	
IC803	8-759-983-54	IC MB87485	

COIL

Ref.No	Part No.	Description	Remark
L801	1-410-377-31	INDUCTOR CHIP 4.7UH	
L802	1-410-384-31	INDUCTOR CHIP 18UH	
L803	1-410-389-31	INDUCTOR CHIP 47UH	
L804	1-410-381-11	INDUCTOR CHIP 10UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q801	8-729-905-18	TRANSISTOR DTC144EU	
Q802	8-729-403-24	TRANSISTOR XN4210	
Q803	8-729-402-19	TRANSISTOR XN6501	

RESISTOR

Ref.No	Part No.	Description				Remark
R801	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R803	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R805	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R806	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R809	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R810	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R812	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R815	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R816	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R818	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R819	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R820	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R821	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R822	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R823	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R824	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R825	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R826	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R827	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R828	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R829	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R830	1-216-817-11	METAL GLAZE	470	5%	1/16W	
R831	1-216-817-11	METAL GLAZE	470	5%	1/16W	
R832	1-216-833-11	METAL GLAZE	10K	5%	1/16W	

NETWORK RESISTOR

Ref.No	Part No.	Description	Remark
RB801	1-236-424-11	NETWORK, RES 10K	
RB802	1-236-424-11	NETWORK, RES 10K	
RB803	1-236-432-11	NETWORK, RES 47K	
RB804	1-236-424-11	NETWORK, RES 10K	

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*A-7062-105-A IN-25 BOARD, COMPLETE

CAPACITOR

Ref.No	Part No.	Description			Remark
C702	1-126-206-11	ELECT CHIP 100MF	20%	6.3V	
C703	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C704	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C705	1-164-005-11	CERAMIC CHIP 0.47MF		25V	
C706	1-126-205-11	ELECT CHIP 47MF	20%	6.3V	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
C707	1-124-778-00	ELECT CHIP 22MF 20%	6.3V
C708	1-163-103-00	CERAMIC CHIP 27PF 5%	50V
C709	1-126-206-11	ELECT CHIP 100MF 20%	6.3V
C710	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C711	1-164-346-11	CERAMIC CHIP 1MF	16V
C712	1-164-346-11	CERAMIC CHIP 1MF	16V
C713	1-164-005-11	CERAMIC CHIP 0.47MF	25V
		CONNECTOR	
CN701	*1-568-262-11	CONNECTOR, BOARD TO BOARD(F)20P	
CN702	1-569-158-11	CONNECTOR, BOARD TO BOARD(F)14P	
CN703	*1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P	
CN704	1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P	
CN705	1-566-543-31	CONNECTOR, FPC (NON ZIF) 11P	
CN706	*1-566-188-11	PIN, CONNECTOR (PC BOARD) 9P	
CN708	*1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	
CN709	*1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	
		DIODE	
D701	8-719-420-15	DIODE MA8082	
D702	8-719-420-15	DIODE MA8082	
D703	8-719-420-15	DIODE MA8082	
D704	8-719-420-15	DIODE MA8082	
D705	8-719-420-15	DIODE MA8082	
D710	8-719-420-15	DIODE MA8082	
D711	8-719-420-15	DIODE MA8082	
		IC	
IC701	8-759-974-21	IC S-8054ALRS-LN	
IC702	8-759-990-78	IC S-81350AG-REG	
IC703	8-759-206-55	IC TC74HC4538F	
IC704	8-759-100-93	IC UPC393G2	
		COIL	
L701	1-412-029-11	INDUCTOR CHIP 10UH	
L703	1-410-192-51	INDUCTOR CHIP 1UH	
L704	1-410-192-51	INDUCTOR CHIP 1UH	
		TRANSISTOR	
Q701	8-729-100-66	TRANSISTOR 2SC1623	
Q702	8-729-100-66	TRANSISTOR 2SC1623	
Q703	8-729-100-66	TRANSISTOR 2SC1623	
Q704	8-729-100-66	TRANSISTOR 2SC1623	
Q705	8-729-100-66	TRANSISTOR 2SC1623	
Q706	8-729-100-66	TRANSISTOR 2SC1623	
Q707	8-729-101-07	TRANSISTOR 2SB798-DL	
Q708	8-729-901-01	TRANSISTOR DTC144EK	
Q711	8-729-903-30	TRANSISTOR DTC143TK	
		RESISTOR	
R701	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R702	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R703	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R704	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R705	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R706	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R707	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R708	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R709	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R710	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R711	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R712	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R713	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R714	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R715	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R716	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R717	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R718	1-216-170-00	METAL GLAZE 68 5% 1/8W	
R719	1-216-099-00	METAL GLAZE 120K 5% 1/10W	
R720	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R721	1-216-111-00	METAL GLAZE 390K 5% 1/10W	
R722	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R723	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R724	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R725	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R727	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R729	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R730	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R731	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R732	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R733	1-216-295-00	METAL GLAZE 0 5% 1/10W	

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***A-7070-973-A CD-19P BOARD, COMPLETE**

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		CAPACITOR	
C901	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C902	1-162-638-11	CERAMIC CHIP 1MF	16V
C903	1-135-089-21	TANTAL. CHIP 6.8MF 20%	20V
C904	1-162-970-11	CERAMIC CHIP 0.01MF 10%	25V
C905	1-135-177-21	TANTAL. CHIP 1MF 20%	20V
C906	1-162-995-11	CERAMIC CHIP 0.022MF	50V
C907	1-135-162-21	TANTAL. CHIP 33MF 20%	6.3V
C908	1-162-995-11	CERAMIC CHIP 0.022MF	50V
C909	1-135-155-21	TANTAL. CHIP 4.7MF 20%	16V
C910	1-162-995-11	CERAMIC CHIP 0.022MF	50V
C911	1-162-637-11	CERAMIC CHIP 0.47MF	16V
		CONNECTOR	
CN301	1-568-365-41	CONNECTOR, BOARD TO BOARD 14P	
		TRANSISTOR	
Q901	8-765-420-02	TRANSISTOR 2SK300-3	

When indicating parts by reference number, please include the board name.

CD-19P MA-38P ST-28

Ref.No	Part No.	Description	Remark
		RESISTOR	
R901	1-216-817-11	METAL GLAZE 470 5% 1/16W	
R902	1-216-828-11	METAL GLAZE 3.9K 5% 1/16W	
R903	1-216-848-11	METAL GLAZE 180K 5% 1/16W	
R904	1-216-838-11	METAL GLAZE 27K 5% 1/16W	
R905	1-216-809-11	METAL GLAZE 100 5% 1/16W	
R906	1-216-819-11	METAL GLAZE 680 5% 1/16W	
R907	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
**			
	*A-7071-091-A	MA-38P BOARD, COMPLETE ***********************	
		CAPACITOR	
C951	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C952	1-126-206-11	ELECT CHIP 100MF 20% 6.3V	
C953	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C954	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C955	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C956	1-162-638-11	CERAMIC CHIP 1MF 16V	
C957	1-126-205-11	ELECT CHIP 47MF 20% 6.3V	
C958	1-164-156-11	CERAMIC CHIP 0.1MF 25V	
C959	1-162-638-11	CERAMIC CHIP 1MF 16V	
C960	1-163-081-00	CERAMIC CHIP 0.22MF 25V	
C961	1-162-638-11	CERAMIC CHIP 1MF 16V	
C962	1-163-081-00	CERAMIC CHIP 0.22MF 25V	
C963	1-126-206-11	ELECT CHIP 100MF 20% 6.3V	
C964	1-164-156-11	CERAMIC CHIP 0.1MF 25V	
C965	1-126-206-11	ELECT CHIP 100MF 20% 6.3V	
C967	1-164-156-11	CERAMIC CHIP 0.1MF 25V	
C968	1-164-156-11	CERAMIC CHIP 0.1MF 25V	
		CONNECTOR	
CN951	*1-565-542-11	PIN, CONNECTOR (PC BOARD) 3P	
		DIODE	
D951	8-719-420-15	DIODE MA8082	
D952	8-719-420-15	DIODE MA8082	
D953	8-719-420-15	DIODE MA8082	
D954	8-719-420-15	DIODE MA8082	
D955	8-719-420-15	DIODE MA8082	
		IC	
IC951	8-759-111-56	IC UPC4572G2	
		JACK	
J951	1-507-899-00	JACK (SMALL TYPE) (MIC PLUG IN POWER)	
J952	1-563-454-11	JACK, MINIATURE (DC OUT)	
		COIL	
L951	1-410-658-31	INDUCTOR CHIP 220UH	
L952	1-410-192-51	INDUCTOR CHIP 1UH	
L953	1-410-192-51	INDUCTOR CHIP 1UH	
L954	1-410-192-51	INDUCTOR CHIP 1UH	
L955	1-410-192-51	INDUCTOR CHIP 1UH	
L956	1-410-192-51	INDUCTOR CHIP 1UH	
		TRANSISTOR	
Q951	8-729-905-35	TRANSISTOR 2SC4081	
Q952	8-729-905-35	TRANSISTOR 2SC4081	
Q953	8-729-905-35	TRANSISTOR 2SC4081	
Q954	8-729-101-07	TRANSISTOR 2SB798-DL	
		RESISTOR	
R951	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R952	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R954	1-216-844-11	METAL GLAZE 82K 5% 1/16W	
R955	1-216-845-11	METAL GLAZE 100K 5% 1/16W	
R956	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R957	1-216-828-11	METAL GLAZE 3.9K 5% 1/16W	
R958	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R959	1-216-828-11	METAL GLAZE 3.9K 5% 1/16W	
R960	1-216-826-11	METAL GLAZE 2.7K 5% 1/16W	
R961	1-216-830-11	METAL GLAZE 5.6K 5% 1/16W	
R962	1-216-162-00	METAL GLAZE 33 5% 1/8W	
R963	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R964	1-216-822-11	METAL GLAZE 1.2K 5% 1/16W	
R965	1-216-831-11	METAL GLAZE 6.8K 5% 1/16W	
R966	1-216-831-11	METAL GLAZE 6.8K 5% 1/16W	
R967	1-216-843-11	METAL GLAZE 68K 5% 1/16W	
R968	1-216-845-11	METAL GLAZE 100K 5% 1/16W	
R969	1-216-838-11	METAL GLAZE 27K 5% 1/16W	
R970	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R971	1-216-843-11	METAL GLAZE 68K 5% 1/16W	
R972	1-216-845-11	METAL GLAZE 100K 5% 1/16W	
R973	1-216-838-11	METAL GLAZE 27K 5% 1/16W	
R974	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
**			
	*1-632-926-11	ST-28 BOARD ************	
		CONNECTOR	
CN536	1-565-528-11	PIN, CONNECTOR (PC BOARD) 3P	
CN537	*1-566-762-11	PIN, CONNECTOR (PC BOARD) 7P	
CN538	*1-566-758-11	PIN, CONNECTOR (PC BOARD) 3P	
CN539	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P	
CN540	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P	
		COIL	
L535	1-410-337-11	INDUCTOR 1UH	
L536	1-410-337-11	INDUCTOR 1UH	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
		RESISTOR	
R536	1-216-295-00	METAL GLAZE 0 5% 1/10W	
		SWITCH	
S535	1-570-689-11	SWITCH, KEY BOARD (START/STOP)	
S536	1-553-977-00	SWITCH, SLIDE (STANBY/LOCK)	

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Ref.No	Part No.	Description	Remark
	*1-632-927-11	LI-15 BOARD ************	
		CAPACITOR	
C851	1-135-156-21	TANTAL. CHIP 6.8MF 20% 10V	
		CONNECTOR	
CN851	*1-566-758-11	PIN, CONNECTOR (PC BOARD) 3P	
		BATTERY HOLDER	
J851	1-550-104-11	HOLDER, BATTERY	
		SWITCH	
S851	1-553-977-41	SWITCH, SLIDE (EVF CONT)	

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Ref.No	Part No.	Description	Remark
	*1-632-928-11	FK-13 BOARD ************	
		DIODE	
D881	8-719-400-18	DIODE MA152WK	
D882	8-719-400-18	DIODE MA152WK	
D883	8-719-400-18	DIODE MA152WK	
		RESISTOR	
R881	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R882	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R883	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
		SWITCH	
S881	1-571-684-11	SWITCH, TACTIL (WHT BAL)	
S882	1-571-684-11	SWITCH, TACTIL (BACK LIGHT)	
S883	1-571-684-11	SWITCH, TACTIL (FOCUS)	
S884	1-571-684-11	SWITCH, TACTIL (SHUTTER SPEED)	
S885	1-571-684-11	SWITCH, TACTIL (SUPERIMPOSE)	
S886	1-553-977-41	SWITCH, SLIDE (AUTO LOCK)	
		FLEXIBLE BOARD	
W881	1-632-931-11	FP-244 FLEXIBLE BOARD	
W882	1-632-932-11	FP-287 FLEXIBLE BOARD	

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Ref.No	Part No.	Description	Remark
	*1-632-929-11	FK-17 BOARD ************	
		DIODE	
D891	8-719-400-18	DIODE MA152WK	
D892	8-719-400-18	DIODE MA152WK	
		IC	
IC891	8-759-234-77	IC TC4S66F	
		SWITCH	
S891	1-571-684-11	SWITCH, TACTIL (MEMORY)	
S892	1-571-684-11	SWITCH, TACTIL (COLOR/MODE)	
S893	1-571-684-11	SWITCH, TACTIL (DATE +)	
S894	1-571-684-11	SWITCH, TACTIL (TIME (NEXT))	

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Ref.No	Part No.	Description	Remark
	*1-632-924-11	JK-48P BOARD *************	
		CAPACITOR	
C931	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C932	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
		DIODE	
D931	8-719-420-15	DIODE MA8082	
D932	8-719-420-15	DIODE MA8082	
		JACK	
J931	1-507-950-61	JACK (SMALL TYPE) (ZOOM)	
		COIL	
L931	1-410-192-51	INDUCTOR CHIP 1UH	
L932	1-410-192-51	INDUCTOR CHIP 1UH	
L933	1-410-192-51	INDUCTOR CHIP 1UH	

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Ref.No	Part No.	Description	Remark
	*1-633-904-11	AG-2 BOARD ***********	
		CAPACITOR	
C801	1-164-161-11	CERAMIC CHIP 2200PF 10% 50V	
C802	1-164-346-11	CERAMIC CHIP 1MF 16V	
C803	1-164-779-00	ELECT 10MF 20% 16V	
C804	1-126-599-11	ELECT 330MF 20% 6.3V	
C805	1-164-346-11	CERAMIC CHIP 1MF 16V	
C806	1-164-161-11	CERAMIC CHIP 2200PF 10% 50V	
C807	1-126-205-11	ELECT 47MF 20% 6.3V	
C808	1-126-205-11	ELECT 47MF 20% 6.3V	

When indicating parts by reference number, please include the board name.

AG-2

Ref.No	Part No.	Description	Remark
		CONNECTOR	
CN801	1-566-759-11	PIN, CONNECTOR 4P	
CN801	1-566-759-11	PIN, CONNECTOR 4P	
		IC	
IC801	8-759-939-73	IC BA3308	
		RESISTOR	
R801	1-216-023-00	METAL GLAZE 82 5% 1/10W	
R802	1-216-062-00	METAL GLAZE 3.6K 5% 1/10W	
R803	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R804	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R805	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R806	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R807	1-216-062-00	METAL GLAZE 3.6K 5% 1/10W	
R808	1-216-023-00	METAL GLAZE 82 5% 1/10W	

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MISCELLANEOUS
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	⚠1-466-250-11	TRANSFORMER UNIT
	1-542-101-21	MICROPHONE (C-2020A)
	1-547-335-31	LENS, ZOOM (VCL-1106XA)
	1-547-393-11	FILTER BLOCK, OPTICAL (OFB-02-G)
	1-547-394-11	FILTER, OPTICAL (PN-02-02)
	1-575-245-11	CORD, CONNECTION
IC901	A-7091-132-A	CCD IMAGER ASSY (ICX027BK-1)
M904	3-707-660-01	METER ASSY, EE (IRIS)
M905	3-707-659-01	MOTOR ASSY, AF/Z GEAR (FOCUS/ZOOM)
S901	3-707-662-01	SW ASSY, LEAF (FOCUS END)
S951	1-572-168-11	SWITCH, PUSH (ZOOM)
V901	⚠1-452-482-11	CRT ASSY (M91JYZ60WB)

****

ACCESSORIES AND PACKING MATERIALS
****

Part No.	Description	Remark
1-465-330-11	REMOTE COMMANDER (WIRED)	
1-575-244-11	CORD, CONNECTION	
*3-741-228-01	CUSHION (UPPER)	
*3-741-229-01	CUSHION (LOWER)	
3-741-236-01	STRAP, HAND	
*3-741-248-01	INDIVIDUAL CARTON	
3-750-958-11	MANUAL, INSTRUCTION (ENGLISH)	
3-750-958-41	MANUAL, INSTRUCTION (FRENCH, GERMAV, SPANISH)	
3-750-958-51	MANUAL, INSTRUCTION (SWEDISH, DUTCH, ITALIAN)	

****

Ref.No	Part No.	Description	Remark
		HARDWARE LIST	
		SCREW	
	7-621-281-15	SCREW +P 2X2	
	7-627-553-47	PRECISION SCREW +P 2X4 TYPE 3	

****

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 7
ELECTRICAL ADJUSTMENTS

During the adjustment, see the arrangement diagram for adjustment parts from page 160.

7-1. PRE-ADJUSTMENT PREPARATIONS

Note: Use the color reproduction chart for CCD-TR55E

7-1-1. List of Servicing jigs

- Oscilloscope
- Regulated power supply (2 units)
- Adjusting screwdriver
- Color monitor
- Vectorscope
- Digital voltmeter
- Frequency counter
- Alignment tape: Operation check WR5-5CSP (8-967-995-47)

Ref. No.	Part Name	Part No.	Use
J-1	Filter (C14) for color temperature correction (Combination of C2 and C12)	J-6080-058-A	Auto white balance confirmation
J-2	ND filter 1.0	J-6080-808-A	Max. gain adjustment (two filters used)
	ND filter 0.4	J-6080-806-A	Iris adjustment, iris in/out adjustment (two used)
	ND filter 0.3	J-6080-818-A	Max. gain adjustment
	ND filter 0.1	J-6080-807-A	Iris adjustment, iris in/out adjustment
J-3	Pattern box PTB-450*	J-	
J-4	Pattern box color chart	J-6020-250-A	
J-5	Siemens star	J-6080-875-A	For flange back adjustment
J-6	AF microprocessor data reading jig	J-6082-025-A	
J-7	Adjustment remote controller	J-6082-053-A	
J-8	Extention cord (14P)	J-6082-061-A	Extention for IN-25 board (when repairing VC-66P and DI-24P board)
			Extention for CD-19P board (when repairing VC-66P and DI-24P board)
J-9	Extention cord (11P)	J-6082-013-A	Extention for FK-13 board (when operating the switches)
J-10	Extention cord (20P)	J-6082-063-B	Extention for IN-25 board (when repairing VC-66P and DI-24P board)
			Extention for LD-20P board (when repairing VC-66P and DI-24P board)
			Extention for TI-20P board (when repairing TI-20P board)
J-11	Extention cord (4P)	J-6082-084-A	For the adjustment remote controller

* PTB-500 (J-6029-140-A) can also be used.

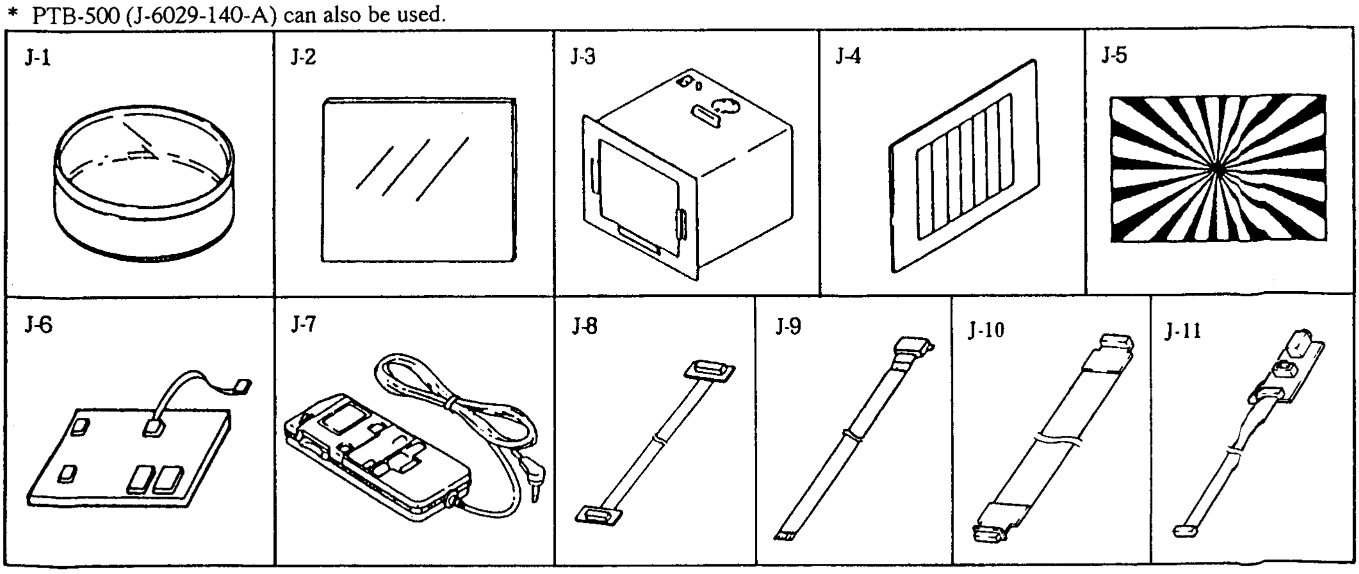


Fig. 7-1.

7-1-2. Preparation

Note: Refer to "2. DISASSEMBLY" for ditails on removal of the cabinet and various boards.

1) Connect the various devices for adjustment as shown in Fig. 7-3-1. (Except system control system adjustment.)
2) The EVF (electronic viewfinder) is needed for confirmation of the white balence mode and shutter speed. Remove CN709 on the IN-25 board when the EVF is not needed.
3) The mic amplifer (MA-38P board) is not needed. Remove CN708 on the IN-25 board.
4) When adjusting system control system and measuring the voltages and waveforms, unfold and connect the various boards as shown in Fig. 7-3-2. (Refer to Fig. 7-3-1. on connecting the various divices for adjsutment.)

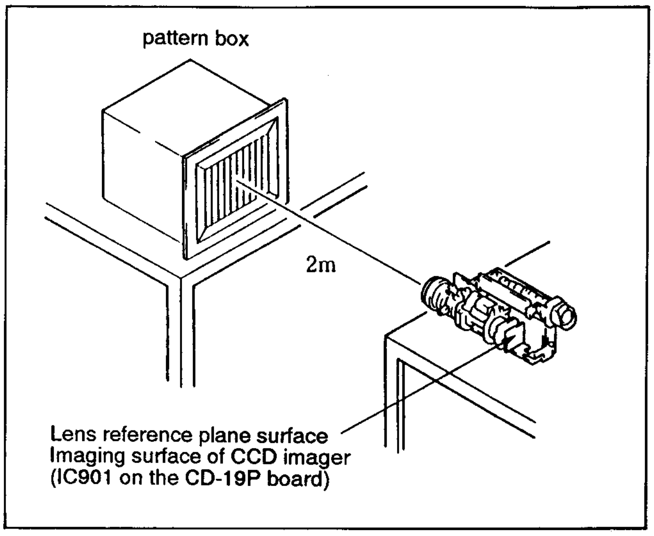

pattern box
2m
Lens reference plane surface
Imaging surface of CCD imager
(IC901 on the CD-19P board)

Fig. 7-2.

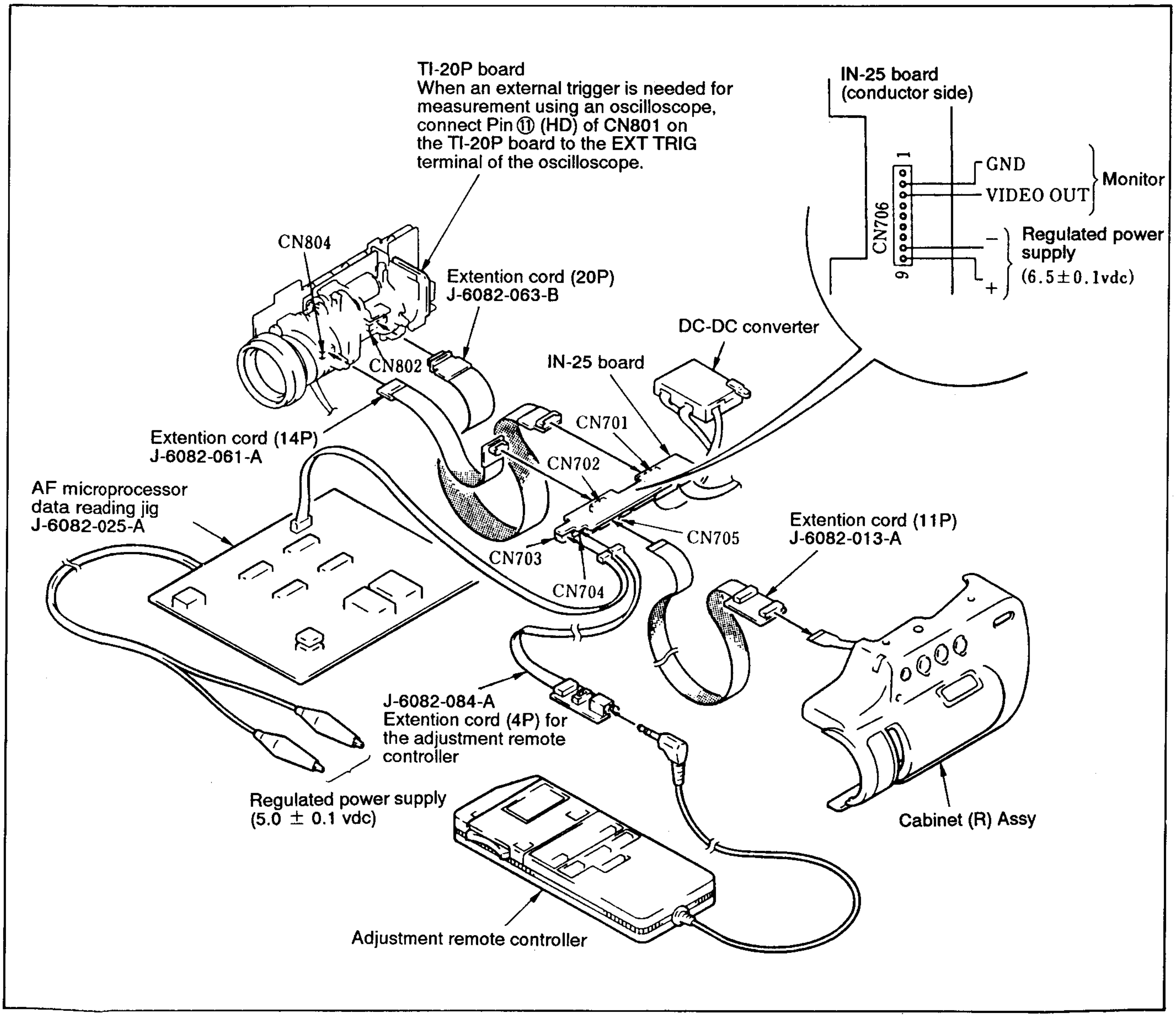

TI-20P board
When an external trigger is needed for measurement using an oscilloscope, connect Pin ⑪ (HD) of CN801 on the TI-20P board to the EXT TRIG terminal of the oscilloscope.
IN-25 board
(conductor side)
1
CN706
9
GND
VIDEO OUT
Monitor
−
+
Regulated power supply
(6.5±0.1vdc)
CN804
Extention cord (20P)
J-6082-063-B
DC-DC converter
IN-25 board
CN802
CN701
CN702
Extention cord (14P)
J-6082-061-A
AF microprocessor data reading jig
J-6082-025-A
CN703
CN704
CN705
Extention cord (11P)
J-6082-013-A
J-6082-084-A
Extention cord (4P) for the adjustment remote controller
Regulated power supply
(5.0 ± 0.1 vdc)
Cabinet (R) Assy
Adjustment remote controller

Fig. 7-3-1.

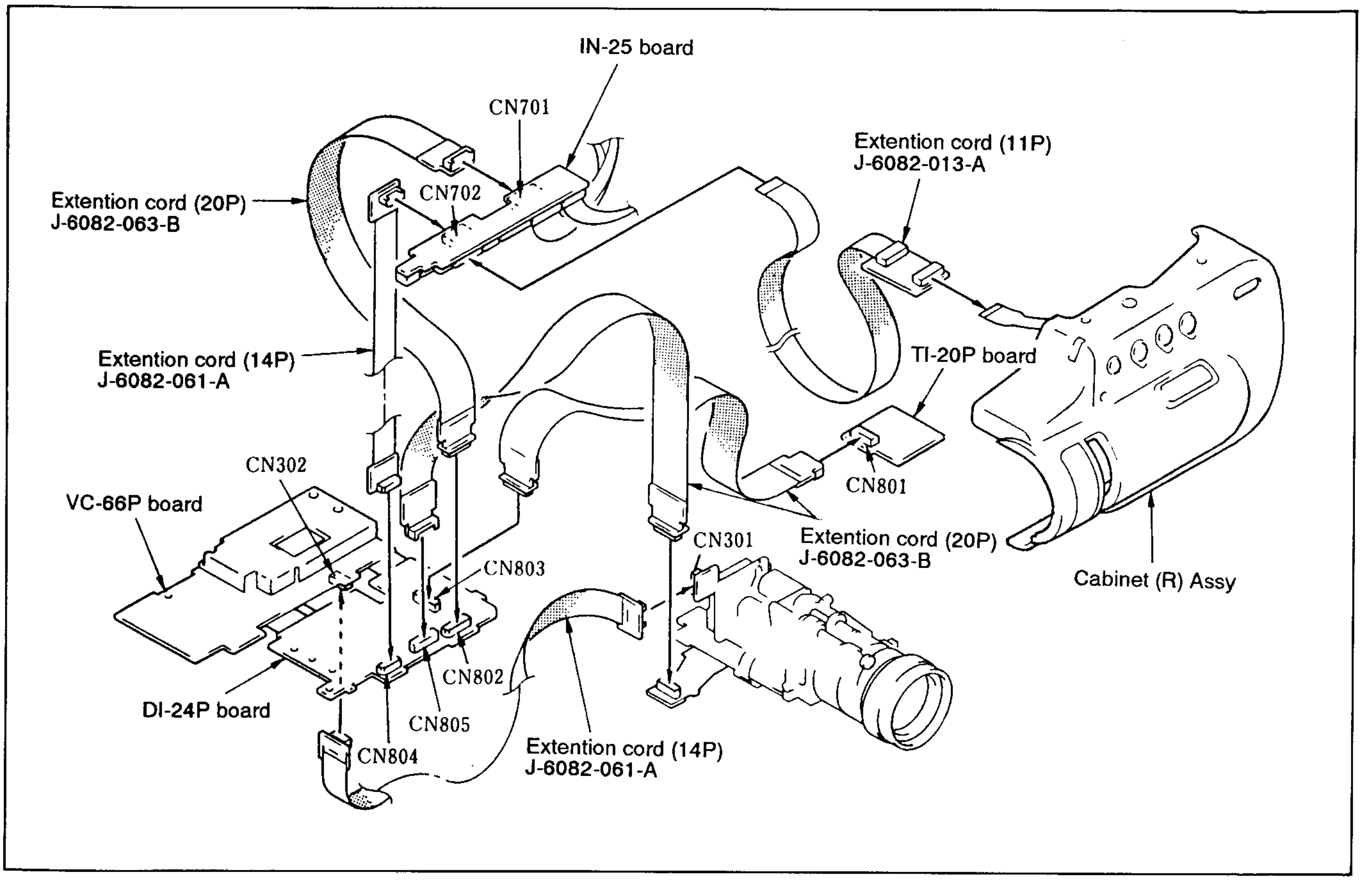

IN-25 board
CN701
Extention cord (11P)
J-6082-013-A
CN702
Extention cord (20P)
J-6082-063-B
Extention cord (14P)
J-6082-061-A
TI-20P board
CN302
VC-66P board
CN801
CN301
Extention cord (20P)
J-6082-063-B
CN803
Cabinet (R) Assy
CN802
DI-24P board
CN805
CN804
Extention cord (14P)
J-6082-061-A

Fig. 7-3-2.

7-1-3. Precautions

1) Setting of Switches
   Unless specified otherwise, the switches are set to the following positions.
   1. Auto-lock switch (S886 on the FK-13 board) …… OFF
   2. White balance button (S881 on the FK-13 board) …… ☼ (indoors white balance mode)
   3. Shutter speed button (S884 on the FK-13 board) …… normal (1/60)

2) Adjustment Order
   As a rule, the adjustments are performed in the listed order.

3) Subjects
   1. Color bar chart (standard picture frame)
      When performing adjustment using the color bar chart, adjust the picture frame shown in Fig. 7-4. (standard picture frame).
   2. White pattern (standard picture frame)
      Remove the color bar chart from the pattern box and use the zoom lever so that the white pattern has the same size and is in the same position as the color bar chart (standard picture frame).

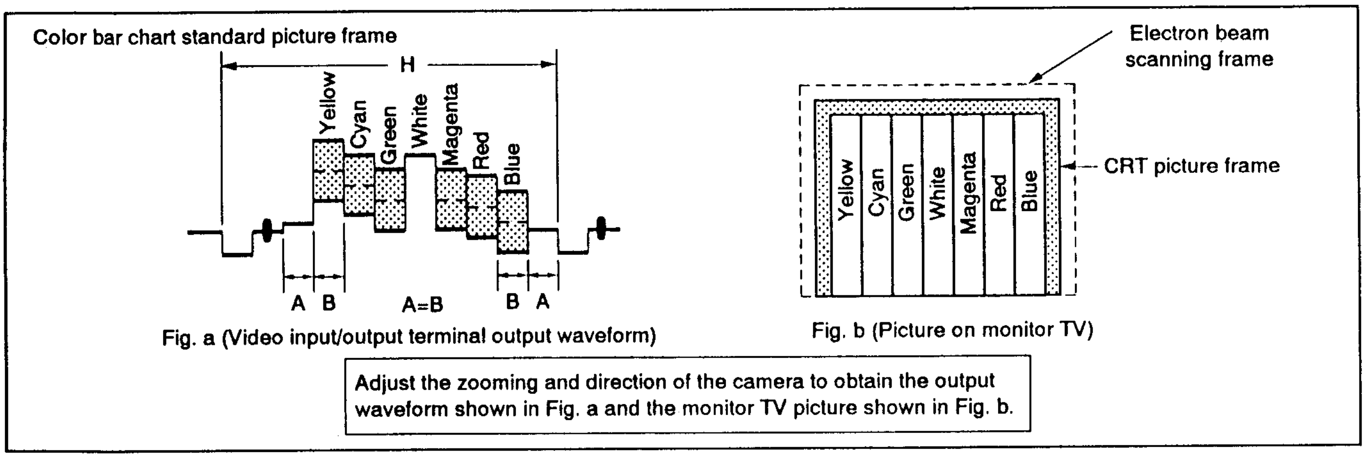

Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A
Electron beam scanning frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

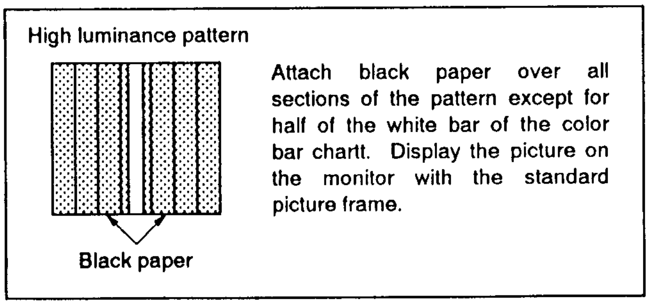
Fig. a (Video input/output terminal output waveform)

Fig. b (Picture on monitor TV)

Adjust the zooming and direction of the camera to obtain the output waveform shown in Fig. a and the monitor TV picture shown in Fig. b.

Fig. 7-4.

3. All white pattern
   Remove the color bar chart from the pattern box and set the zoom lever fully to the TELE (66 mm) side.
4. High luminance pattern
   Create the high luminance pattern as shown in Fig. 7-5., and adjust for the picture frame shown in Fig. 7-6.
5. Siemens star (J-6080-875-A)
   Adjust the direction of the camera so that center of the Siemens star is lined up with the center of the monitor screen on the monitor TV screen.


High luminance pattern
Black paper

Attach black paper over all sections of the pattern except for half of the white bar of the color bar chartt. Display the picture on the monitor with the standard picture frame.

Fig. 7-5.

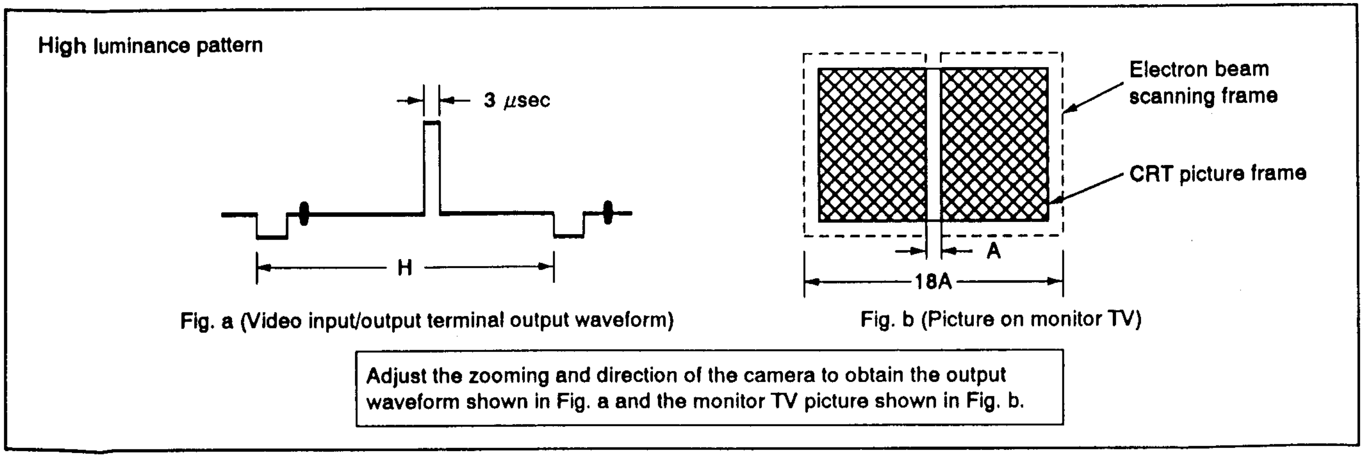

High luminance pattern
3 μsec
H
Electron beam scanning frame
CRT picture frame
A
18A

Fig. a (Video input/output terminal output waveform)

Fig. b (Picture on monitor TV)

Adjust the zooming and direction of the camera to obtain the output waveform shown in Fig. a and the monitor TV picture shown in Fig. b.

Fig. 7-6.

7-1-4. Adjustment Remote Controller

An EVR (electronic variable resistor) is used as the adjustment element for the camera block, replacing the conventional semi-fixed resistor. The EVR is controlled by the EVR/AWB microprocessor (IC361 on the DI-24P board). This microprocessor reads the data written in the nonvolatile memory of the microprocessor and sends it to the EVR. The EVR D-A converts this data (8 bits for each adjustment point) and creates the adjustment voltage.

Thus, it is necessary to change the adjustment data contained in the nonvolatile memory when adjusting the camera block, and the adjustment memory is used for this purpose.

The adjustment remote controller performs bidirectional communications with the camera block microprocessor using the remote control signal lines (LINCS). Adjustment addressese and adjustment data increment/decrement commands are sent to the camera block microprocessor from the adjustment remote controller. Adjustment addresses and adjustment data are sent from the camera block microprocessor to the adjustment remote controller.

1. Use of adjustment remote controller

Solder the lead wire to Pin (B6) (refer to 7-1-5) of the check point array on the VC-66P board.

1) Connect the adjsutment remote controller to CN704 on IN-25 board by the extention cord. (Set the HOLD switch of the adjustment remote controller to the HOLD position (SERVICE position).)
2) Turn on the power of the main unit.
3) Connect Pin (B6) ($\overline{\text{CAM ADJ}}$) of the check point array to GND using a jumper wire.
(This connection causes the EVR/AWB microprocessor to cease normal remote control operation and to begin adjustment dedicated communications.)
Note: Be sure to make this connection only after turning on the power. The following will be displayed on the LCD of the adjustment remote controller if the connection is normal. (Adjustment data varies according to the unit.)

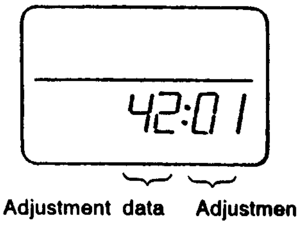


Fig. 7-7.

4) Designate the desired adjustment address using the adjustment remote controller. The adjustment address is incremented by pressing the FF (▸▸) button and decremented by pressing the REW (◂◂) button. (The adjustment address is indicated in decimal, and there are 89 addresses from 01 to 89. The adjustment address corresponds to the EVR (IC252, IC302 on the VC-66P board and IC611 on the DI-24P board) output terminals. Refer to Table 7-3. for the adjustment contents of the various addresses.)

5) Perform adjustment by incrementing or decrementing the adjustment data.
The adjustment data is incremented by pressing the PLAY (►) button. The adjustment data is decremented by pressing the STOP (■) button.
- The adjustment address is indicated in hexadecimal. There are 256 values from 00 to FF.

Hexadecimal	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Indication on LCD	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal equivalent	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 7-1.

- The adjustment data corresponds to the EVR (IC252, IC302 on the VC-66P board and IC611 on the DI-24P board) output voltage, and is as follows.

Adjustment data ( ) is decimal equivalent	EVR output voltage
FF (=255)	Maximum value (approx. 5 Vdc)
F0 (=240)	
E0 (=224)	
D0 (=208)	
C0 (=192)	
B0 (=176)	
A0 (=160)	
90 (=144)	
80 (=128)	Center value (approx. 2.5 Vdc)
70 (=112)	
60 (=96)	
50 (=80)	
40 (=64)	
30 (=48)	
20 (=32)	
10 (=16)	
00 (=0)	Minimum value (approx. 0 Vdc)

Table 7-2.

6) The adjustment address is changed using the FF (►►) button or REW (◄◄) button to store the adjustment data in the nonvolatile memory of EVR/AWB microprocessor (IC361 on the DI-24P board).
(The new adjustment data is not stored in the nonvolatile memory unless this operation is performed.)

2. Precautions on use of adjustment remote controller

It is possible to accidentally erase correct adjustment data due to an error in operation of the adjustment remote controller. In order to prevent this, we recommend that you make a note of all adjustment data before adjustment and record the new adjustment data after completing each adjustment item.

3. Adjustment address table

Adjustment Address	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Adjustment Data Memo Column
01	Pin ⑱ of IC252	DELTA R	Auto white balance adjustment	
02	Pin ⑲ of IC252	DELTA B		
03	Pin ② of IC252	TITLE PEDESTAL		
04	Pin ③ of IC252	C-PED	Fixed at "A0"	A0
05	Pin ④ of IC252	R-Y GAIN	Color reproduction (gain) adjustment	
06	Pin ⑤ of IC252	B-Y GAIN		
07	Pin ⑥ of IC252	R-Y HUE	Color reproduction (hue) adjustment	
08	Pin ⑦ of IC252	B-Y HUE		
09	Pin ⑧ of IC252	C LEVEL		
10	Pin ⑨ of IC252	TITLE Y		
11	Pin ⑫ of IC252	R GAIN	Indoor white balance adjustment	
12	Pin ⑬ of IC252	B GAIN		
13	Pin ⑱ of IC302	C1 GAIN	Chroma matrix adjustment	
14	Pin ⑲ of IC302	Y1 GAIN	Y matrix adjustment	
15	Pin ② of IC302	TITLE A/D		
16	Pin ③ of IC302	BURST LEVEL		
17	Pin ④ of IC302	HUE CONT		
18	Pin ⑤ of IC302	SYNC LEVEL		
19	Pin ⑥ of IC302	SET UP		
20	Pin ⑦ of IC302	WHITE CLIP	White clip adjustment	
21	Pin ⑧ of IC302	Y LEVEL		
22	Pin ⑨ of IC302	APERTURE	Aperture adjustment	
23	Pin ⑫ of IC302	YH GAIN	YH level adjustment	
24	Pin ⑬ of IC302	C2 GAIN	Chroma matrix adjustment	
25	Pin ⑱ of IC611	IRIS		
26	Pin ⑲ of IC611	FOCUS SPEED		
27	Pin ② of IC611	HALL OFFSET		
28	Pin ③ of IC611	MAX GAIN		
29	Pin ④ of IC611	AGC		
30	Pin ⑤ of IC611	V SUB		
31		———		
32		———		
33		———		–
34		———		–
35		———		–
36		———		–

Table 7-3. (1)

<table>
<tr><th>Adjustment Address</th><th>Adjustment Voltage Output Terminal</th><th>Adjustment Item</th><th>Remarks</th><th>Adjustment Data Memo Column</th></tr>
<tr><td>37</td><td></td><td>MODE</td><td>The following adjustment modes are selected by changing the adjustment data.<table>
<tr><th>Adjustment data</th><th>Adjustment mode</th></tr>
<tr><td>00</td><td>Release</td></tr>
<tr><td>01</td><td>Focus hunching</td></tr>
<tr><td>03</td><td>Zoom position</td></tr>
<tr><td>05</td><td>Hall, iris close</td></tr>
<tr><td>07</td><td>Hall, iris open</td></tr>
<tr><td>09</td><td>Hall in/out threshold</td></tr>
<tr><td>0B</td><td>Auto-focus LLA</td></tr>
<tr><td>FD</td><td>Auto-focus filter fixed at FA</td></tr>
<tr><td>FF</td><td>Auto-focus filter fixed at FH</td></tr>
</table></td><td>00</td></tr>
<tr><td>38</td><td></td><td>LLA</td><td>Auto-focus LLA adjustment</td><td></td></tr>
<tr><td>39</td><td></td><td>MACRO</td><td>Macro area adjustment</td><td></td></tr>
<tr><td>40</td><td></td><td>IN/OUT DOOR</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>41</td><td></td><td>LOW CONT</td><td>Fixed at 03</td><td>03</td></tr>
<tr><td>42</td><td></td><td>BASE H</td><td>Auto-focus adjustment</td><td></td></tr>
<tr><td>43</td><td></td><td>THR UP</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>44</td><td></td><td>STEP</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>45</td><td></td><td>Hysteresis</td><td></td><td></td></tr>
<tr><td>46</td><td></td><td>HALL LEVEL</td><td></td><td></td></tr>
<tr><td>47</td><td></td><td>HANT LIMIT</td><td>Fixed at 02</td><td>02</td></tr>
<tr><td>48</td><td></td><td>FA BASE</td><td>Fixed at 28</td><td>28</td></tr>
<tr><td>49</td><td></td><td>INCLINE</td><td>Fixed at 06</td><td>06</td></tr>
<tr><td>50</td><td></td><td>TOPCHECK-THR</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>51</td><td></td><td>BACK RUSH</td><td>Fixed at 02</td><td>02</td></tr>
<tr><td>52</td><td></td><td>TOP CHECK SEARCH</td><td>Fixed at 02</td><td>02</td></tr>
<tr><td>53</td><td></td><td>TOP LIMIT</td><td>Fixed at 05</td><td>05</td></tr>
<tr><td>54</td><td></td><td>FOCUS FG</td><td>Fixed at 01</td><td>01</td></tr>
<tr><td>55</td><td></td><td>TOP CHECK COUNTER</td><td>Fixed at 02</td><td>02</td></tr>
<tr><td>56</td><td></td><td>MODE1 THR</td><td>Fixed at 04</td><td>04</td></tr>
<tr><td>57, 58</td><td></td><td>————</td><td>Not used</td><td>—</td></tr>
<tr><td>59</td><td></td><td>START R</td><td>Preset R CONT data for reset start</td><td>30</td></tr>
<tr><td>60</td><td></td><td>START B</td><td>Preset B CONT data for reset start</td><td>41</td></tr>
<tr><td>61</td><td></td><td>BTM SLP R</td><td>Fixed at 22</td><td>22</td></tr>
<tr><td>62</td><td></td><td>BTM SLP B</td><td>Fixed at 10</td><td>10</td></tr>
<tr><td>63</td><td></td><td>MDL SLP R</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>64</td><td></td><td>MDL SLP B</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>65</td><td></td><td>TOP SLP R</td><td rowspan="2">Auto white balance adjustment</td><td></td></tr>
<tr><td>66</td><td></td><td>TOP SLP B</td><td></td></tr>
<tr><td>67</td><td></td><td>KEIKO R</td><td>Fixed at 10</td><td>10</td></tr>
<tr><td>68</td><td></td><td>KEIKO B</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>69</td><td></td><td>BTM UP</td><td>Fixed at 89</td><td>89</td></tr>
<tr><td>70</td><td></td><td>BTM DWN</td><td>Fixed at 61</td><td>61</td></tr>
</table>

Table 7-3. (2)

Adjustment Addrees	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Adjustment Data Memo Column
71		MDL UP	Fixed at 7C	7C
72		MDL DWN	Fixed at 6A	6A
73		TOP UP	Auto white balance adjustment	
74		TOP DWN		
75		KEIKO DWN	Fixed at 8C	8C
76		R DWN LMT	Fixed at 1E	1E
77		B UP LMT	Auto white balance adjustment	
78		R OUT LMT		
79		B OUT LMT		
80		R OUTDOOR		
81		B OUTDOOR		
82		BM DIVID	Fixed at 23	23
83		DELAY TM	Auto white balance tracking speed. Fixed at 10	10
84		FAST TM	Fixed at 20	20
85		CAM DDS 0	Fixed at 00	00
86		———	Fixed at 00	00
87		———	Fixed at 00	00
88		CAM ALN	Fixed at 00	00
89		AWB mode	The following auto white balance adjustment modes are selected by changing the adjustment data.	00

Adjustment data	Adjustment mode
00	Release
01	Indoor preset output
02	Outdoor preset output
03	Data hold
05	Indoor/outdoor decision disable
10	White balance value output (within tracking zone)
E0	Auto white balance adjustment possible
F0	Auto white balance tracking zone evaluation invalid

Table 7-3. (3)

7-1-5. Check Point Array

Almost all of the measurement points for camera block adjustment are located in the check point array on the VC-66P board. Solder short lead wires onto the terminals needed for adjustment and connect an oscilloscope, etc.

The terminal numbers and signal names for the check point array are shown in Table 7-4.

Terminal No.	Signal Name	Terminal No.	Signal Name
A1	G OUT	B1	ID
A2	N.C	B2	N.C
A3	OFFSET MIX	B3	Y (LPF) OUT
A4	Y0	B4	V SUB
A5	Y1	B5	AW ADJ
A6	C0	B6	$\overline{\text{CAM ADJ}}$
A7	C1	B7	MODE
A8	CAM Y	B8	N.C
A9	YH	B9	SHUTTER EN
A10	CAM C	B10	GND
A11	N.C	B11	IRIS DET

Table 7-4.

*N. C ··· no connection

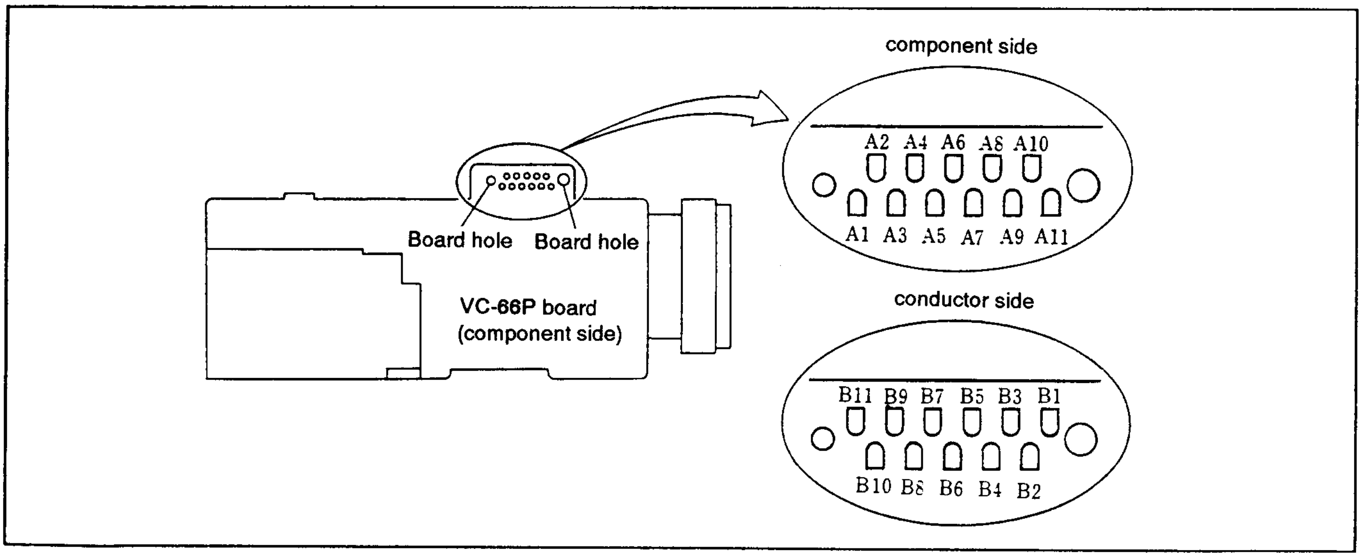

component side
A2 A4 A6 A8 A10
A1 A3 A5 A7 A9 A11
Board hole
Board hole
VC-66P board (component side)
conductor side
B11 B9 B7 B5 B3 B1
B10 B8 B6 B4 B2

Fig. 7-8.

7-1-6. AF Microprocessor Data Reading Jig

The AF microprocessor data reading jig converts the serial data (output data varies according to hall (iris) state, focus state, focus motor speed, zoom ring position, etc.) for adjustment output from the AF microprocessor (IC613 on the DI-24P board) into a 2-digit hexadecimal code and displays it on the LED.

Connections:
Connect as shown in the diagram below.

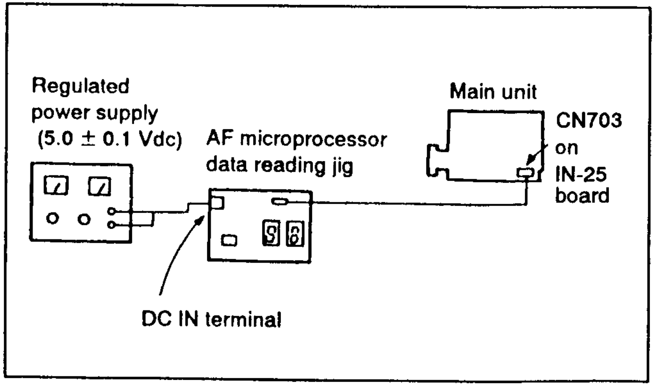

Regulated power supply (5.0 ± 0.1 Vdc)
AF microprocessor data reading jig
Main unit
CN703 on IN-25 board
DC IN terminal

Fig. 7-9.

7-1-7. Data Processing

For some of the adjustment items, calculation from the data (hexadecimal) indicated on the AF microprocessor data reading jig and adjustment remote controller is needed to obtain the adjustment data. In these cases, convert the hexadecimal values to decimal before calculation and reconvert the result to hexadecimal to obtain the adjustment data. A hexadecimal-decimal conversion table is shown in Table 7-5.

Hexadecimal-Decimal Conversion Table

②

Hexadecimal lower digit / Hexadecimal upper digit	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A(A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B(b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C(c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D(d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E(E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F(F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) is the indication on the jig or adjustment remote controller.

Example: The indication on the jig or adjustment remote commander is BD (b d).
As the upper digit is B (b) and the lower digit is D (d), a decimal value of 189 is obtained from the intersection of ① and ② in the above table.

Table 7-5.

7-2. CAMERA SYSTEM ADJUSTMENT

7-2-1. Flange Back Adjustment

Subject	Siemens star (2m directly in front of lens reference plane (CCD imager))
Measurement Point	Check with a monitor TV
Measuring Instrument	
Adjusting Element	Flange back adjusting pin
Tools	Phillips screwdriver, flat blade (−) screwdriver

Adjustment method:

1) Press the FOCUS switch (S883 on the FK-13 board) to set to the MANUAL mode.
2) Position a Siemens star 2m directly in front of the lens reference plane (See Fig. 7-2.).
3) Orient the camera block to have the center of the Siemens star imaged on the monitor TV screen coincide with the monitor screen center.
4) Check to assure the smooth motion of the lens zoom lever to both its extreme WIDE position (11 mm) and TELE position (66 mm), and then set it at the extreme WIDE position. (In this process, also check the monitor image to assure proper zooming operation.)
5) Select adjustment address 37 with the adjustment remote controller and enter adjustment data of 07. (Iris open mode) At this time, adjust the illumination on the Siemens star or place an ND filter over the lens, and confirm that the proper image is displayed on the monitor TV screen.
6) Set the lens focusing mark at the center of "2".

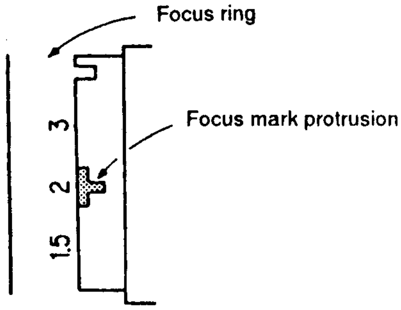


Fig. 7-10.

7) Loosen flange back setscrew ❶ with a Phillips screwdriver. (See Fig. 7-12.)
8) By turning the flange back adjusting pin ❷ while watching the monitor screen, attain the optimum definition of a wedge at the Siemens star center on the screen. (Turn it a few turns to the left and right to ensure optimum definition.)
   Note: Do not turn the adjusting pin excessively in either direction.
9) While holding the flange back adjusting pin ❷ to prevent further rotation, retighten the flange back setscrew ❶.
10) With the zoom lever fixed at its WIDE end, turn the focusing ring and set it to the position that provides the optimum definition image of the wedge. Check to assure the focusing mark protrusion position is within the range shown in Fig. 7-11. Also, rotate the focusing ring to the close (1.1m) and far (∞) extremes and confirm that the wedge is no longer in focus.

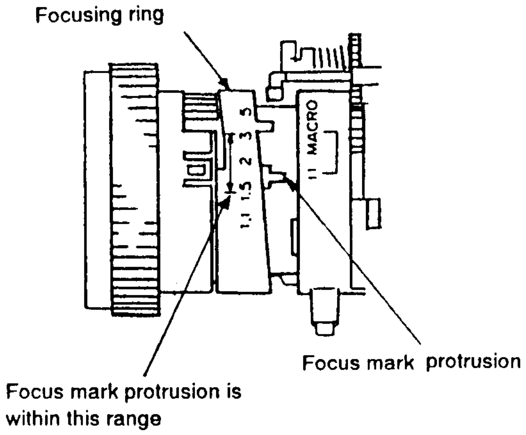


Fig. 7-11.

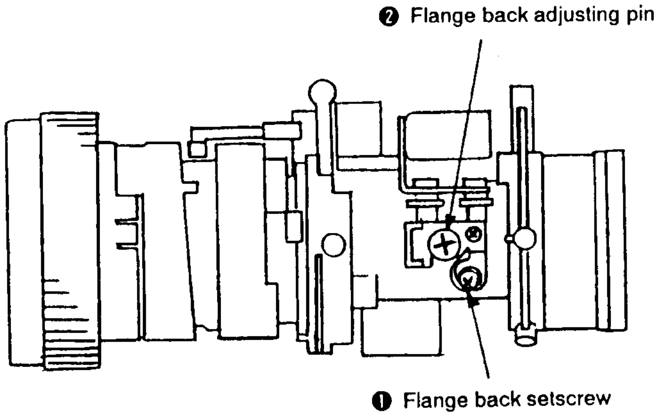


Fig. 7-12.

11) Fix the zoom lever at the extreme TELE position.
12) Turn the focusing ring and stop at the position where the wedge has optimum definition.
    Confirm that the focus mark is within ± 1.5 mm of "2".
13) Select adjustment address 37 with the adjustment remote controller and enter adjustment data of 00. (Iris normal)
14) Change the adjustment address to store the adjustment data in the memory.

7-2-2. Power Supply Check (IN-25 Board)

Measuring Instrument	Digital voltmeter
CAM 5V Check	
Measurement Point	Pin ⑦ of W701
Specified Value	4.9 $^{+0.1}_{-0.07}$ Vdc
15V Check	
Measurement Point	Pin ⑤ of W701
Specified Value	15.0 ± 0.45 Vdc
− 9V Check	
Measurement Point	Pin ⑥ of W701
Specified Value	− 9.0 ± 0.5 Vdc
SS5V, EVER 5V Check	
Measurement Point	Pin ①, ② of CN701
Specified Value	5.0 ± 0.5 Vdc
EVF 5V Check	
Measurement Point	Pin ① of CN709
Specified Value	5.0 ± 0.1 Vdc

Checking method:

1) Each power supply voltage should be at its specified level.

7-2-3. EVR Initial Settings

Set to the following initial settings of the adjustment data only when the EVR/AWB microprocessor (IC361 on the DI-24P board) was replaced.

Adjustment Address	Adjustment Data Initia Value	Adjustment Address	Adjustment Data Initia Value	Adjustment Address	Adjustment Data Initia Value
01 (DELTA R)	50	43 (THR UP)	00	67 (KEIKO R)	10
02 (DELTA B)	50	44 (STEP)	00	68 (KEIKO B)	00
04 (C-PED)	A0	47 (HANT LIMIT)	02	69 (BTM UP)	89
16 (BURST LEVEL)	B0	48 (FA BASE)	28	70 (BTM DWN)	61
17 (HUE CONT)	B0	49 (INCLINE)	06	71 (MDL UP)	7C
18 (SYNCL KEVEL)	A0	50 (TOP CHECK-THR)	00	72 (MDL DWN)	6A
19 (SET UP)	A7	51 (BACK RUSH)	02	75 (KEIKO DWN)	8C
20 (WC)	FF	52 (TOPCHECK-SEARCH)	02	76 (R DWN LMT)	1E
21 (Y LEVEL)	41	53 (TOP LIMIT)	05	82 (BMDIV)	23
25 (IRIS)	FF	54 (FOCUS FG)	01	83 (D TM)	10
28 (MAX GAIN)	B0	55 (TOP CHECK COUNTER)	02	84 (F TM)	20
29 (AGC)	FF	56 (MODE 1 THR)	04	85 (CAM DDS O)	00
30 (V SUB)	40	59 (START R)	30	86	00
38 (LLA)	3F	60 (START B)	41	87	00
39 (MACRO)	00	61 (BTM SLP R)	22	88 (CAM ALN)	00
40 (IN/OUT DOOR)	00	62 (BTM SLP B)	10	89 (AWB MODE)	00
41 (LOW CONT)	03	63 (MDL SLP)	00		
42 (BASE H)	03	64 (MDL SLP B)	00		

Table 7-6.

Adjustment method:

1) Set the RV701 (HALL ADJ) on the LD-20P board to the mechanical center.
2) Set the adjustment data at the various adjustment addresses to the initial values using the adjustment remote controller.
3) Change the adjustment address to store the last adjustment data in the memory.

7-2-4. V SUB Adjustment (VC-66P Board)

Subject	Not needed
Measurement Point	Pin (B4) (V SUB) of check point array
Measuring Instrument	Digital voltmeter
Adjustment Address	30 (V SUB)
Specified Value	(Voltage indicated by the imager) ± 0.05 Vdc

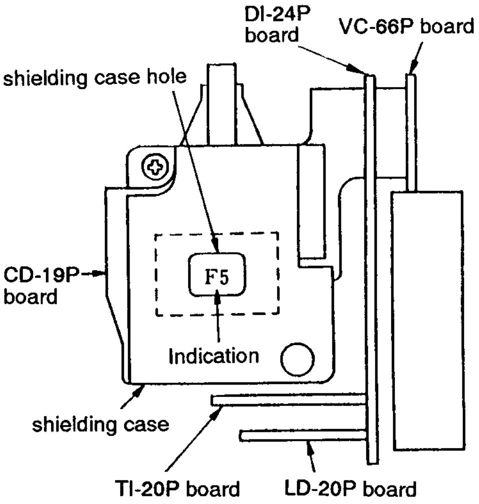
Adjustment method:

1) Set the adjustment address to 30 using the adjustment remote controller.
2) Change the adjustment data using the adjustment remote controller to set the VSUB voltage to (Voltage indicated by the imager) ± 0.05 Vdc.
3) Change the adjustment address to store the adjustment data in the memory.

Note: The VSUB specified voltage is expressed by two digits with the integer section abbreviation and decimal section by the imager.

Remove TI-20P board (CN803 on the VC-66P board) befor confirming the V_{SUB} specified voltage.

Integer section abbreviation	Integer value
7	7
8	8
9	9
A	10
B	11
C	12
D	13
E	14
F	15
G	16
H	17
I	18
J	19



(Example)
If F5 is indicated, the integer value is F → 15 and decimal value is 5 → 0.5. Thus, the VSUB voltage is 15 + 0.5 = 15.5 (Vdc).

Fig. 7-13.

7-2-5. PLL Adjustment (VC-66P Board)

Subject	Not needed
Measurement Point	R152 side terminal of C152 or Pin ⑳ on the IC141
Measuring Instrument	Digital voltmeter
Adjustment Element	CT142
Specified Value	2.5 ± 0.1 Vdc

Adjustment method:

1) Adjust to 2.5 ± 0.1 Vdc with CT142.

7-2-6. Hall Adjustment (LD-20P Board)

Subject	All black (cover lens with black cap)
Measurement Point	CN703 on the IN-25 board
Measuring Instrument	AF microprocessor data reading jig
Adjusment Address	27 (Hall Offset)
Adjusting Element	RV701
Specified Value	When iris closed: Minimum value of 01 to 04 When iris open: 3D or 3E

Adjustment method:

1) Set the adjustment address to 37 with the adjustment remote controller, and set the adjustment data to 05. (Setting when iris closed)
2) Change the adjustment address to 27.
3) Change the adjustment data until the indication on the AF microprocessor data reading jig is the minimum value in the range of 01 to 04. (Hall offset adjustment)
4) Change the adjustment address to 37 and set the adjustment data to 07. (Setting when iris open)
5) Adjust RV701 until the indication on the AF microprocessor data reading jig is either 3D or 3E. (3D is indicated as 3d .)
6) Repeat steps 1) through 5) until the specified values are satisfied.
7) Set the adjustment address to 37 and set the adjustment data to 00. (Releases adjustment mode)
8) Change the adjustment address to store the adjustment data in the memory.

7-2-7. Iris Adjustment (VC-66P Board)

Subject	Color bar chart standard picture frame
Filter	ND filter 0.4 (two)
Measurement Point	Pin(B11)(CCD OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	25 (Iris)
Specified Value	360 ± 20 mVp-p

Adjustment method:

1) Set the adjustment address to 25 with the adjustment remote controller.
2) Without attaching an ND filter, change the adjustment data with the adjustment remote controller to set the IRIS OUT signal level to 360 ± 20 mVp-p.
3) Attach the ND filter 0.8 (0.4 + 0.4) to the front of the lens and confirm that there is a smooth change in the signal level.
4) Remove the ND filter and confirm that the signal level is 360 ± 25 mVp-p.
5) Repeat 2) through 4) if the specified value is not met.
6) Change the adjustment address to store the adjustment data in the memory.

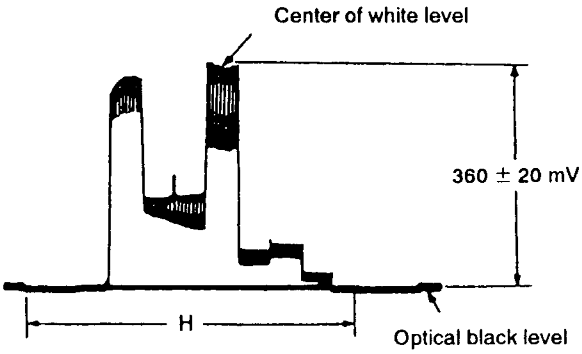


Fig. 7-14.

7-2-8. Iris In/Out Adjustment (VC-66P Board)

Subject	White pattern standard picture frame
Filter	ND filter 0.4 (two) and 0.1 (one)
Measurement Point	CN304
Measuring Instrument	AF microprocessor data reading jig
Adjustment Address	46 (hall level) 45 (hysteresis)

Adjustment method:

1) Cover the lens with the ND filter 0.8 (0.4+0.4).
2) Set the adjustment address to 37 with the adjustment remote controller and set the adjustment data to 09. (Hall in/out threshold mode setting)
3) Read the data indicated on the AF microprocessor data reading jig. This data will be a.
4) Change the adjustment address to 46 and enter a as the adjustment data.
5) Remove the ND filter 0.8 and replace it with ND filter 0.5 (0.4+0.1).
6) Read the data indicated on the AF microprocessor data reading jig. This data will be b.
7) Subtract data b from data a to obtain data c.
   (Refer to Table 7-5. Hexadecimal-Decimal Conversion Table)
   (Example)
   If a=1A and b=15, c=a−b =1A (26) − 15 (21) =05
   ( ) indicates decimal value
8) Obtain the hysteresis data from data c using the table below.

Data c	Hysteresis Data
02, 03	01
04, 05, 06	02
07, 08, 09	03

   (Example)
   The hysteresis data is 02 if c=05.
9) Change the adjustment address to 45 and enter the hysteresis data as the adjustment data.
10) Change the adjustment address to 37 and set the adjustment data to 00.
   (Releases hall in/out threshold mode)
11) Change the adjustment address to store the adjustment data in the memory.

7-2-9. AGC Adjustment (VC-66P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin (B3) (Y (LPF) OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	29 (AGC)
Specified Value	160 ± 5 mVp-p

Adjustment method:

1) Set the adjustment address to 29 using the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the Y (LPF) signal level to 160 ± 5 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

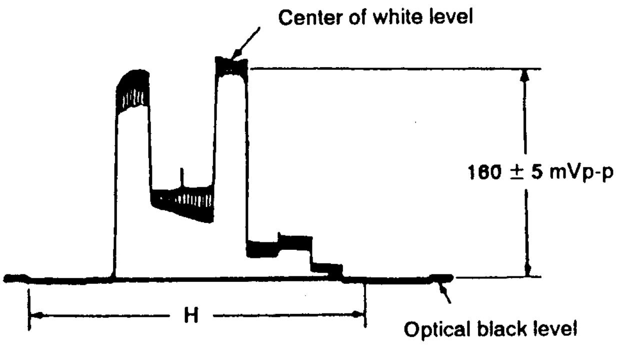


Fig. 7-15.

7-2-10. Y Signal Matrix Adjustment (VC-66P Board)

Subject	Color bar standard picture frame
Measurement Point	1: Pin (A4) (Y0) of check point array 2: Pin (A5) (Y1) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	14 (Y1 GAIN)
Specified Value	Y1 signal level=Y0 signal level

Adjustment method:

1) Connect the oscilloscope to Pin (A4) of the check point array and measure the Y0 signal level.
2) Connect the oscilloscope to Pin (A5) of the check point array.
3) Set the adjustment address to 14 using the adjustment remote controller.
4) Change the adjustment data until the Y1 signal level is the same as the Y0 signal level measured in 1).
5) Change the adjustment address to store the adjustment data in the memory.

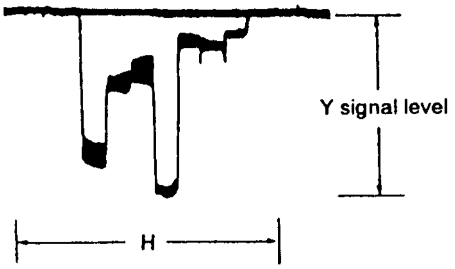


Fig. 7-16.

7-2-11. Chroma Signal Matrix Adjustment (1) (VC-66P Board)

Subject	Color bar standard picture frame
Measurement Point	1: Pin (A6) (C0) of check point array 2: Pin (A7) (C1) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	13 (C1 GAIN)
Specified Value	C1 signal level=C0 signal level

Adjustment method:

1) Connect the oscilloscope to Pin (A6) of the check point array and measure the C0 signal level. (The C0 signal level is the larger of the CR and CB signal levels.)
2) Connect the oscilloscope to Pin (A7) of the check point array.
3) Set the adjustment address to 13 using the adjustment remote controller.
4) Change the adjustment data until the C1 signal level is the same as the C0 signal level measured in 1).
5) Change the adjustment address to store the adjustment data in the memory.

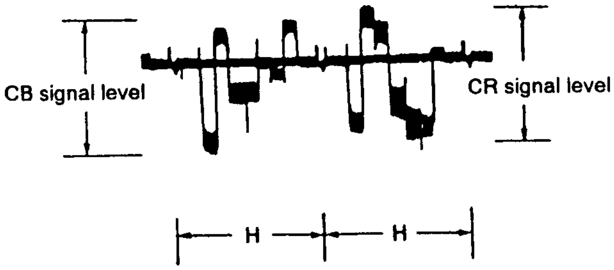


Fig. 7-17. C0 and C1 signal levels

7-2-12. Chroma Signal Matrix Adjustment (2) (VC-66P Board)

Subject	Color bar standard picture frame
Measurement Point	CH1 (X): emitter of Q257 (B-Y) CH2 (Y): emitter of Q255 (R-Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	24 (C2 GAIN)
Specified Value	Separate color luminance points become one.

Note: Adjustment can be made in the same manner using a vectorscope.
(Vectorscope connection terminal: Pin ③ (VIDEO OUT) of CN706 on the IN-25 board)

Adjustment method:

1) Set the adjustment address to 24 using the adjustment remote controller.
2) Change the adjustment data so that the two separate color luminance points become one respectively.
3) Change the adjustment address to store the adjustment data in the memory.

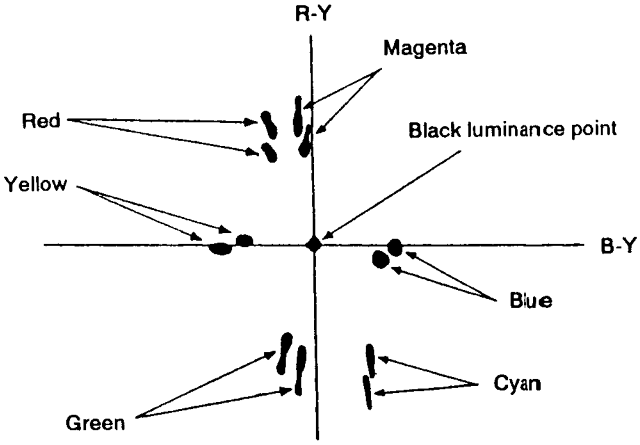


Fig. 7-18.

7-2-13. YH Level Adjustment (VC-66P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin(A9) (YH) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	23 (YH LEVEL)
Specified Value	900 ± 40 mVp-p

Adjustment method:

1) Set the adjustment address to 23 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the YH signal level to 900 ± 40 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

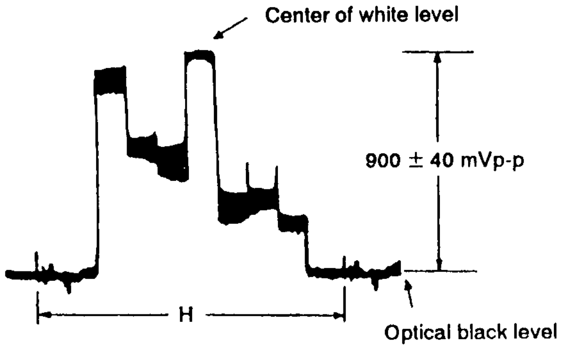


Fig. 7-19.

7-2-14. Sync Level Adjustment (VC-66P Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin ③ (VIDEO OUT) of CN706 on the IN-25 board
Measuring Instrument	Oscilloscope
Adjustment Address	18 (SYNC LEVEL)
Specified Value	150 ± 5 mVp-p

Adjustment method:

1) Set the adjustment address to 18 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the sync level to 150 ± 5 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

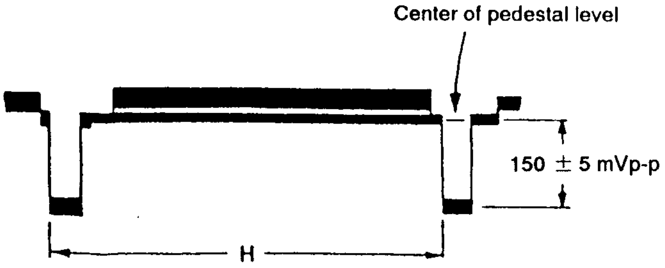


Fig. 7-20.

7-2-15. Setup Adjustment (VC-66P Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin ③ (VIDEO OUT) of CN706 on the IN-25 board
Measuring Instrument	Oscilloscope
Adjustment Address	19 (SET UP)
Specified Value	15 ± 5 mV

Note: 1), 2) and 3) are steps taken to reduce noise.

Adjustment method:

1) Set the address to 22 (APERTURE) with the adjustment remote controller, and enter 00 as the adjustment data after making a note of the adjustment data for this address.
2) Set the address to 28 (MAX GAIN) with the adjustment remote controller, and enter 00 as the adjustment data after making a note of the adjustment data for this address.
3) Set the adjustment address to 21 (Y LEVEL) with the adjustment remote controller, and enter 90 as the adjustment data after making a note of the adjustment data for this address.
4) Set the adjustmenyt address to 19 with the adjustment remote controller.
5) Change the adjustment data with the adjustment remote controller to set the setup level to 15 ± 5 mV.
6) Set the adjustment address to 22 and enter the adjustment data recorded in 1).
7) Set the adjustment address to 28 and enter the adjustment data recorded in 2).
8) Set the adjustment address to 21 and enter the adjustment data recorded in 3).
9) Change the adjustment address to store the adjustment data in the memory.

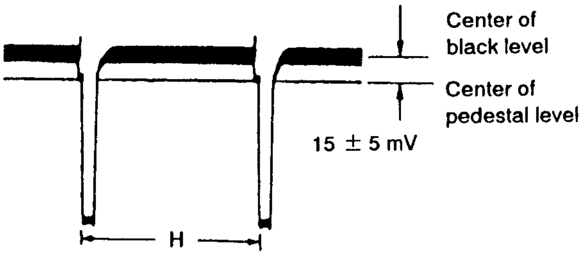


Fig. 7-21.

7-2-16. Y Level Adjustment (VC-66P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin ③ (VIDEO OUT) of CN706 on the IN-25 board
Measuring Instrument	Oscilloscope
Adjustment Address	21 (Y LEVEL)
Specified Value	305 ± 5 mV

Adjustment method:

1) Set the adjustment address to 20 with the adjustment remote controller, and make a note of the adjustment data for this address.
2) Set the adjustment data to FF with the adjustment remote controller.
3) Set the adjustment address to 21 with the adjustment remote controller.
4) Change the adjustment data with the adjustment remote controller to set the Y signal level to 305 ± 5 mV.
5) Set the adjustment address to 20 and enter the adjustment data recorded in 1).
6) Change the adjustment address to store the adjustment data in the memory.

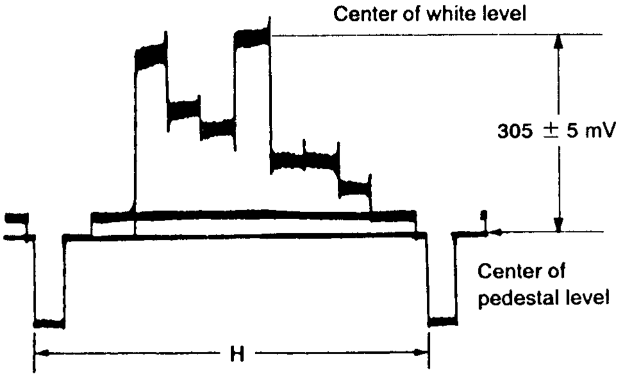


Fig. 7-22.

7-2-17. White Clip Adjustment (VC-66P Board)

Subject	High luminance pattern
Measurement Point	Pin ③ (VIDEO OUT) of CN706 on the IN-25 board
Measuring Instrument	Oscilloscope
Adjustment Address	20 (WHITE CLIP)
Specified Value	420 ± 20 mV

Adjustment method:

1) Set the adjustment address to 21 with the adjustment remote commander, and make a note of the adjustment data for this address.
2) Set the adjustment data to 40 with the adjustment remote commander.
3) Set the adjustment address to 20 with the adjustment remote controller.
4) Change the adjustment data with the adjustment remote controller to set the white clip level to 420 ± 20 mV.
5) Set the adjustment address to 21 and enter the adjustment data recorded in 1).
6) Change the adjustment address to store the adjustment data in the memory.

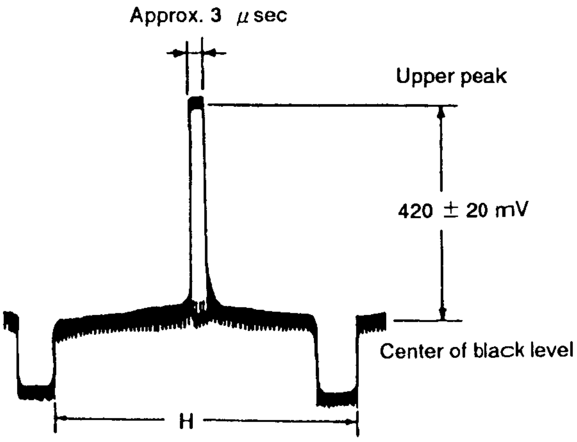


Fig. 7-23.

7-2-18. Aperture Adjustment (VC-66P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin (A8) (CAM Y) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	22 (APERTURE)
Specified Value	240 ± 10 mV

Adjustment method:

1) Set the adjustment address to 22 with the adjustment remote controller.
2) Focus the camera and set the aperture level (lower peak between green and white) to maximum.
3) Change the adjustment data to set the lower peak between green and white to 240 ± 10 mV above the pedestal level.
4) Change the adjustment address to store the adjustment data in the memory.

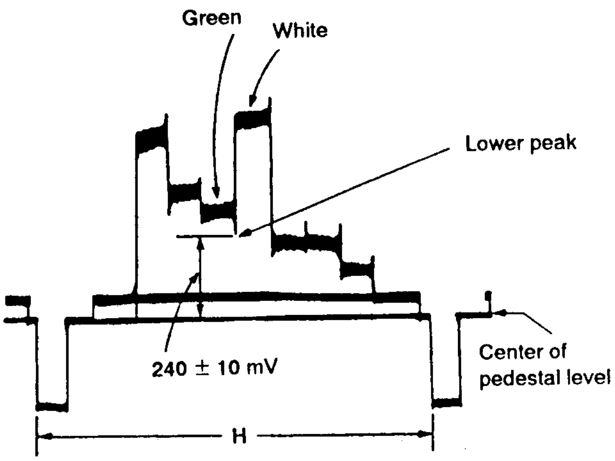


Fig. 7-24.

7-2-19. Max. Gain Adjustment (VC-66P Board)

Subject	Color bar chart standard picture frame
Filter	ND filters 1.0 (two) and 0.3 (one)
Measurement Point	Pin ③ (VIDEO OUT) of CN706 on the IN-25 board
Measuring Instrument	Oscilloscope
Adjustment Address	28 (MAX GAIN)
Specified Value	180 ± 5 mV

Adjustment method:

1) Cover the lens with the ND filter 2.3 (1.0 + 1.0 + 0.3).
2) Set the adjustment address to 28 with the adjustment remote controller.
3) Change the adjustment data with the adjustment remote controller to set the Y signal level to 180 ± 5 mV.
4) Change the adjustment address to store the adjustment data in the memory.

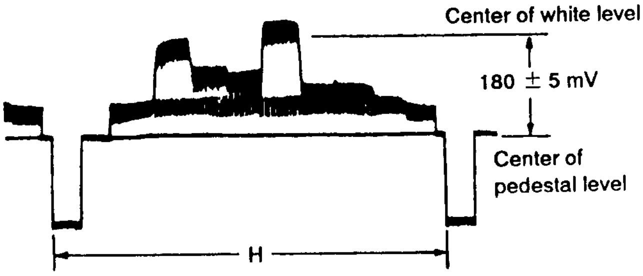


Fig. 7-25.

7-2-20. Chroma Level Adjustment (VC-66P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin (A1) (G OUT CHK) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	09 (C LEVEL)
Specified Value	320 ± 20 mVp-p

Connections:

1) Connect Pin (B7) (MODE) of the check point array to GND using a jamper wire.

Adjustment method:

1) Set the adjustment address to 09 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the G OUT signal level to 320 ± 20 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

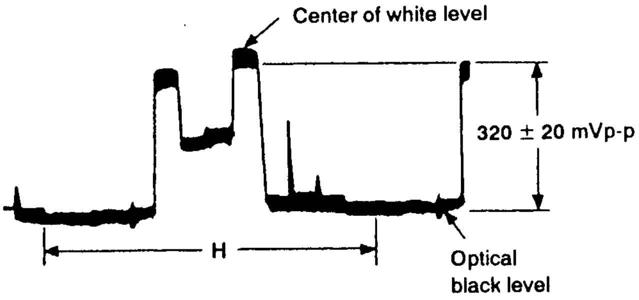


Fig. 7-26.

7-2-21. Burst Level Adjustment (VC-66P Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin (A10) (CAM C) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	16 (BURST LEVEL)
Specified Value	145 ± 5mVp-p

Adjustment method:

1) Set the adjustment address to 16 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the burst level to 145 ± 5 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

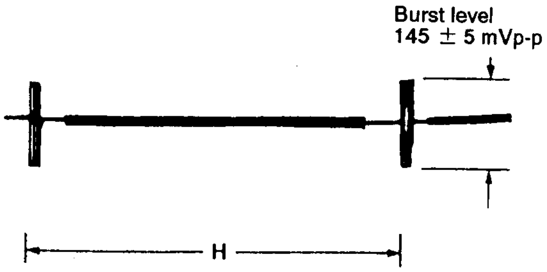


Fig. 7-27.

7-2-22. Indoor White Balance Adjustment (Method Using Vectorscope) (VC-66P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin ③ (VIDEO OUT) of CN706 on the IN-25 board
Measuring Instrument	Vectorscope
Adjustment Address	11 (R GAIN) 12 (B GAIN)
Specified Value	The center of the white luminance point is within a circle with a diameter of 1 mm centered around the origin.

Adjustment method:

1) Set the adjustment address to 11 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to move the white luminance point to the origin point.
3) Set the adjustment address to 12.
4) Change the adjustment data to move the white luminance point to the origin point.
5) Repeat steps 1) through 4).
6) Change the adjustment address to store the adjustment data in the memory.

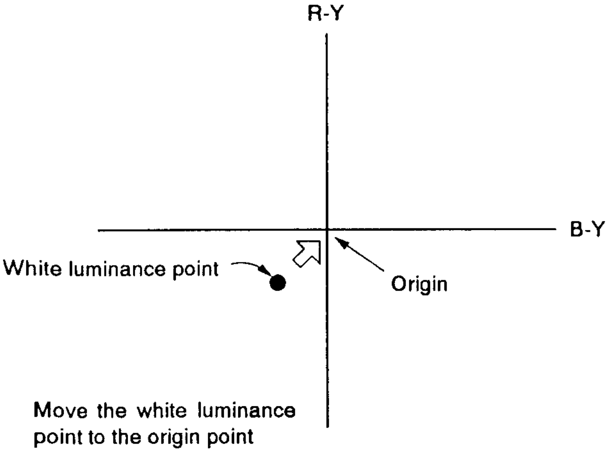

R-Y
B-Y
White luminance point
Origin
Move the white luminance point to the origin point

Fig. 7-28.

7-2-23. Indoor White Balance Adjustment (Method Using Oscilloscope) (VC-66P Board)

Subject	Color bar chart standard picture frame
Measurement Point	CH1 (X): emitter of Q257 (B-Y) CH2 (Y): emitter of Q255 (R-Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	11 (R GAIN) 12 (B GAIN)
Specified Value	Move the white luminance point to the black luminance point.

Adjustment method:

1) Set the adjustment address to 11 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to move the white luminance point with the black luminance point.
3) Set the adjustment address to 12.
4) Change the adjustment data to move the white luminance point to the black luminance point.
5) Repeat steps 1) through 4).
6) Change the adjustment address to store the adjustment data in the memory.

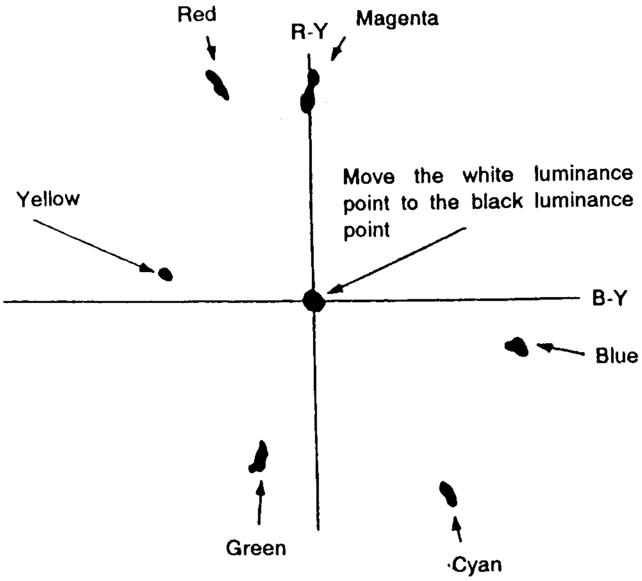

Red
R-Y
Magenta
Yellow
Move the white luminance point to the black luminance point
B-Y
Blue
Green
Cyan

Fig. 7-29.

7-2-24. Color Reproduction Adjustment (Method Using Vectorscope) (VC-66P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Address	05 (R-Y GAIN) 06 (B-Y GAIN) 07 (B-Y HUE) 08 (R-Y HUE)
Specified Value	All color luminance points are within color reproduction frame.

Note: Confirm that Burst Level Adjustment and Indoor White Balance Adjustment have been completed.

Note: Use the color reproduction chart for CCD-TR55E.

Adjustment method:

1) Adjust the phase and gain of the vectorscope to set the burst luminance points to the designated position on the color reproduction frame.
2) Change the adjustment data at the various adjustment addresses using the adjustment remote controller until all color luminance points are within the color reproduction frame.
3) Change the adjustment address to store the adjustment data in the memory.

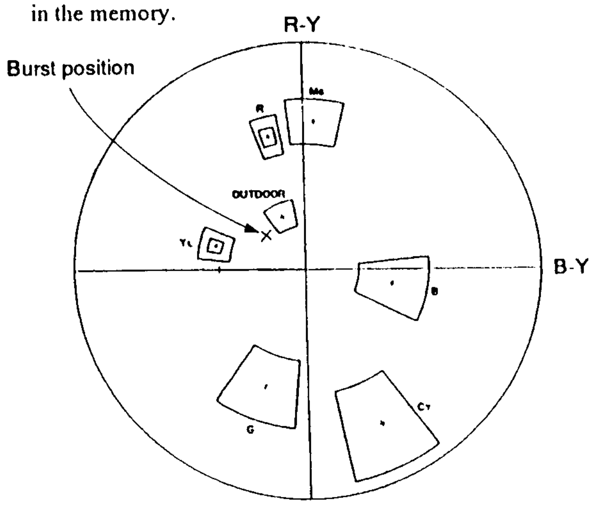


Fig. 7-30

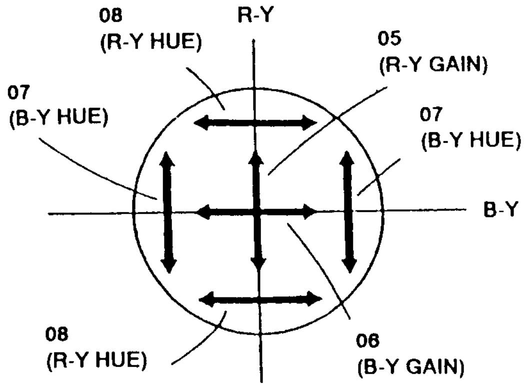


Fig. 7-31. Adjustment Address and Direction of Luminance Point Movement

7-2-25. Color Reproduction Adjustment (Method Using Oscilloscope)

1. Gain adjustment (VC-66P board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin A10 (CAM C) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	05 (R-Y GAIN) 06 (B-Y GAIN)
Specified Value	Red level: 285 ± 15 mVp-p Yellow level: 190 ± 12 mVp-p

Note: Confirm that Indoor White Balance Adjustment has been completed.

Adjustment method:

1) Set the adjustment address to 06 with the adjustment remote controller and set the adjustment data to B0.
2) Set the adjustment address to 07 and set the adjustment data to C0.
3) Set the adjustment address to 08 and set the adjustment data to C0.
4) Set the adjustment address to 05 and change the adjustment data to set the chroma signal red level to 285 ± 15 mVp-p
5) Set the adjustment address to 06 and change the adjustment data to set the chroma signal yellow level to 190± 12 mVp-p
6) Repeat steps 4) and 5).
7) Change the adjustment address to store the adjustment data in the memory.
8) Perform Hue Adjustment.

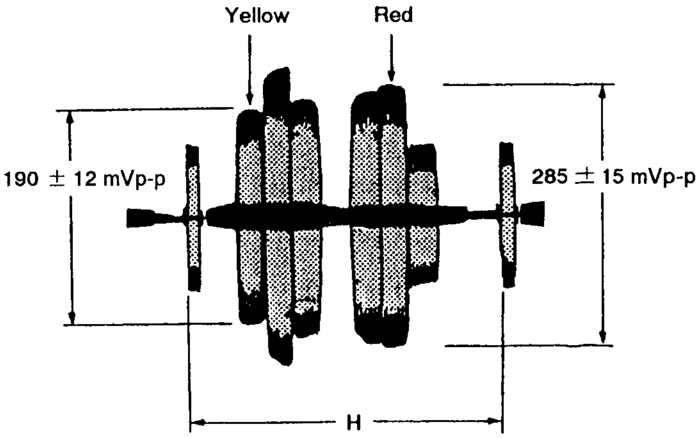


Fig. 7-32.

2. Hue adjsutment (VC-66P board)

Subject	Color bar chart standard picture frame
Measurement Point	CH1 (X): emitter of Q257 (B-Y) CH2 (Y): emitter of Q255 (R-Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	07 (B-Y HUE) 08 (R-Y HUE)
Specified Value	Various color luminance points within color reproduction frame.

Note: Make sure that Indoor White Balance Adjustment has been completed.

Note: Use the color reproduction chart for CCD-TR55E.

Adjustment method:

1) Move the black luminance point on the oscilloscope to the origin point of the color reproduction frame.
2) Change the adjustment data at adjustment addresses 07 and 08 with the adjustment remote controller to bring the various color luminance points into the color reproduction frame.
3) Check the hue reproduced on the monitor TV and fine adjust the adjustment data at adjustment addresses 07 and 08 if necessary.
4) Change the adjustment address to store the adjustment data in the memory.

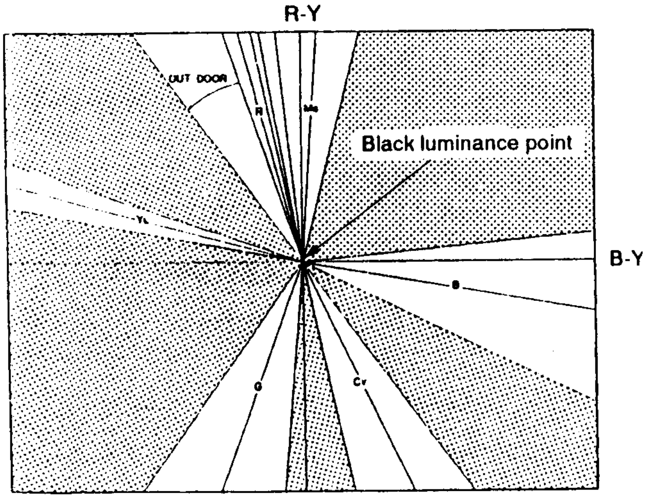


Fig. 7-33.

7-2-26. Auto White Balance Adjustment

Note: Be sure to first perform Preset Adjustment followed by Auto White Balance Adjustment.

1. Preset adjustment (VC-66P board)

Subject	White pattern standard picture frame

Note: 1) Perform preset adjustment after supplying power to the unit for at least 30 seconds.
2) When performing preset adjustment again, repeat after first turning the power off and then back on.

Preparations:

1) Prepare a 1 kΩ resistor for connecting Pin (B5) (AW ADJ) of the check point array and Pin ④ (CAM 5V) of W801.

Adjustment method:

1) Turn the power OFF and then ON.
2) Select adjustment address 89 (AWB MODE) and set the adjustment data to E0. Wait at least five seconds.
3) Change the adjustment address to store the adjustment data in the memory.
4) Turn off the switch on the extention cord (J-6082-084-A) for the adjustment remote controller.
5) Connect Pin (B5) (AW ADJ) of the check point array and Pin ④ of W801 (CAM 5V) with a 1k Ω resistor.
6) Turn on the switch on the extention cord for the adjustment remote controller.
7) Confirm that the indication (adjustment address 01) of the adjustment remote controller is changed.
8) Turn off the switch on the extention cord for the adjustment remote controller after allowing one second or more to pass.
9) Remove the 1 kΩ resistor connected to Pin (B5) (AW ADJ) of the check point array.
10) Turn on the switch on the extention cord for the adjustment remote controller.

2. Auto white balance adjustment (VC-66P board)

Note: Be sure to perform this adjustment after completing Preset Adjustment.

Subject	White pattern standard picture frame
Filter	Filter C14 (C12+C2) for color temperature correction
Measuring Instrument	Oscilloscope (X-Y Mode)
Measurement Point	CH1 (X): emitter of Q257 (B-Y) CH2 (Y): emitter of Q255 (R-Y)
Adjustment Address	01 (DELTA R) 02 (DELTA B) 80 (R OUTDOOR) 81 (B OUTDOOR) 77 (B UP LIMIT) 78 (R OUT LIMIT) 79 (B OUT LIMIT) 65 (TOP SLP R) 66 (TOP SLP B) 73 (TOP UP) 74 (TOP DWN)
Specified Value	Line up the white luminance point with the black luminance point.

Note: 1) Make connection to Pin ③ (VIDEO OUT) of CN706 on the IN-25 board the vectorscope is used.
2) All calculations in this section are made in decimal.

Adjustment method:

1) Select adjustment address 89 (AWB MODE) with the adjustment remote controller and enter adjustment data of 10.
2) Change the adjustment data of adjustment addresses 01 and 02 with the adjustment remote controller to move the white luminance point to the black luminance point.
(Move the white luminance point to the origin point when using the vectorscope.)
The adjustment data of adjustment address 01 is D_1 and the adjustment data of adjustment address 02 is D_2.
3) Convert adjustment data D_1 to decimal to obtain D_1'.
Convert adjustment data D_2 to decimal to obtain D_2'.
(See Table 7-5. Hexadecimal-Decimal Conversion Table)
4) Obtain D_{80}' and D_{81}' by the following formulas.
$D_{80}'=D_1'+1$
$D_{81}'=D_2'+3$
5) Convert D_{80}' and D_{81}' to hexadecimal and call these values D_{80} and D_{81}.
6) Select adjustment address 80 with the adjustment remote controller and enter adjustment data D_{80}.
7) Select adjustment address 81 with the adjustment remote controller and enter adjustment data D_{81}.
8) Obtain D_{77}' by the following formula.
$D_{77}'=(D_2' \times 1.9)-43.2$
9) Convert D_{77}' to hexadecimal and call this value D_{77}.
(Round off the decimal portion)
10) Select adjustment address 77 with the adjustment remote controller and enter adjustment data D_{77}.
11) Select adjustment address 78 with the adjustment remote controller and enter adjustment data D_1.
12) Obtain D_{79}' by the following formula.
$D_{79}'=D_2'+10$
13) Convert D_{79}' to hexadecimal and call this value D_{79}.
14) Select adjustment address 79 with the adjustment remote controller and enter adjustment data D_{79}.
15) Obtain d' by the following formula.
$d'=(D_1' \times 5)+D_2'$
The adjustment procedure in 16) through 18) varies according to the value of d'.

[d' > 308]

16) Obtain D_{73}' and D_{74}' by the following formulas.
$D_{73}'=(D_1' \times 3)+(D_2' \div 2)+30$
$D_{74}'=D_{73}'-42$
17) Convert D_{73}' and D_{74}' to hexadecimal and call these values D_{73} and D_{74}.
(Round off the decimal portion)
18) Use the adjustment remote controller to enter the adjustment data shown in the table below for the indicated adjustment addresses.

Adjustment address	Adjustment data
65	20
66	01
73	D_{73}
74	D_{74}

Perform the adjustment steps beginning from 19).

[308 ≧ d' ≧ 286]

16) Obtain D_{73}' and D_{74}' by the following formulas.
$D_{73}'=(d' \div 2)+25$
$D_{74}'=D_{73}'-39$
17) Convert D_{73}' and D_{74}' to hexadecimal and call these values D_{73} and D_{74}.
(Round off the decimal portion)
18) Use the adjustment remote controller to enter the adjustment data shown in the table below for the indicated adjustment addresses.

Adjustment address	Adjustment data
65	41
66	01
73	D_{73}
74	D_{74}

Perform the adjustment steps beginning from 19).

[286 > d']

16) Obtain D_{73}' and D_{74}' by the following formulas.
$D_{73}'=(D_1' \times 3)+D_2'+30$
$D_{74}'=D_{73}'-42$
17) Convert D_{73}' and D_{74}' to hexadecimal and call these values D_{73} and D_{74}. (Round off the decimal portion)
18) Use the adjustment remote controller to enter the adjustment data shown in the table below for the indicated adjustment addresses.

Adjustment address	Adjustment data
65	20
66	00
73	D_{73}
74	D_{74}

19) Select adjustment address 89 and enter adjustment data 00.
20) Select adjustment address 89 and enter adjustment data F0.
21) Change the adjustment data of adjustment addresses 01 and 02 with the adjustment remote controller to move the white luminance point to the black luminance point.
(Move the white luminance point to the origin point when using the vectorscope.)
22) Select adjustment address 89 and enter adjustment data of 00.
23) Change the adjustment address to store the adjustment data in the memory.

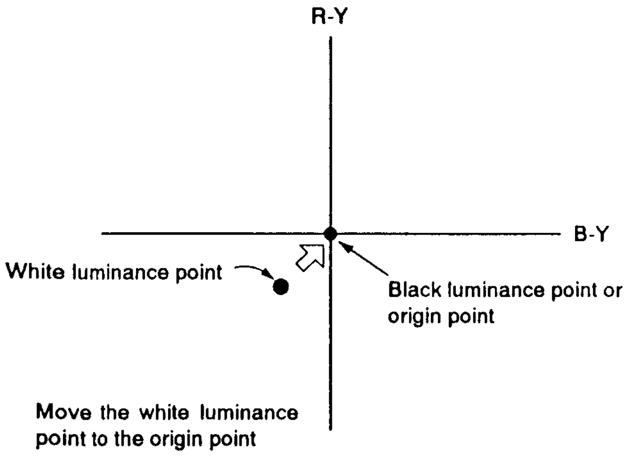

R-Y
B-Y
White luminance point
Black luminance point or origin point
Move the white luminance point to the origin point

Fig. 7-34.

(Example)
When the adjustment data obtained in Step 2) has the following values.

Adjustment address	Adjustment data
01	2A
02	53

→ Enter into adjustment address 78

D_1=2A and D_2=53 when there is conversion to decimal using Table 7-5.
$D_1'=42$
$D_2'=83$

In the same manner,
$D_{77}'=(83 \times 1.9)-43.2=114.5$

Rounding off the decimal portion,
$D_{77}=73$ → Entered into adjustment address 77
Thus,
$D_{80}'=42+1=43$
$D_{81}'=83+3=86$
Converting to hexadecimal by Table. 7-5 results in,
D_{80}=2B → Entered into adjustment address 80
$D_{81}=56$ → Entered into adjustment address 81
$D_{79}'=(83+10)=93$
D_{79}=5D → Entered into adjustment address 79

In addition,
$d'=(42 \times 5)+83=293$

Thus, $[308 \geqq d' \geqq 286]$
$D_{73}'=(293 \div 2)+25=171.5$
$\therefore$ D_{73}=AC → Entered into adjustment address 73
$D_{74}'=171.5-39=132.5$
$\therefore$ $D_{74}=85$ → Entered into adjustment address 74

Also, adjustment data of 41 is entered into adjustment address 65, and adjustment data of 01 is entered into adjustment address 66.
The steps beginning from 19) are then performed.

7-2-27. Outdoor White Balance Confirmation (VC-66P Board)

Subject	White pattern standard picture frame
Measurement Point	When vectorscope used: video input/output terminals When oscilloscope used: CH1 (X): emitter of Q257 (B-Y) CH2 (Y): emitter of Q255 (R-Y)
Measuring Instrument	
Specified Value	See Fig. 7-35.

Connections:

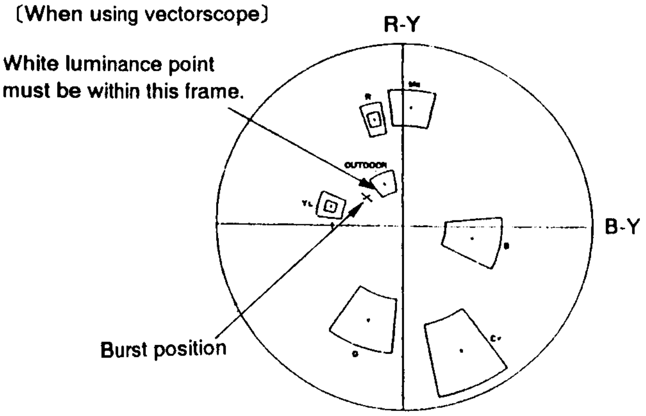
1) Turn off the switch on the extention coard (J-6082-084-A) for the adjustment remote controller. (Turns off the EVR adjustment mode)

Checking method:

1) Press the white balance button to select the outdoor white balance mode. (☀ mark is displayed on EVF screen.)
2) Confirm that the center of the white luminance point is within the OUTDOOR frame of the color reproduction frame.

   Note: When using a vectorscope, adjust the GAIN and PHASE of the vectorscope so that burst luminance point move to the burst position of the color reproduction frame.

[When using vectorscope]



[When using oscilloscope]

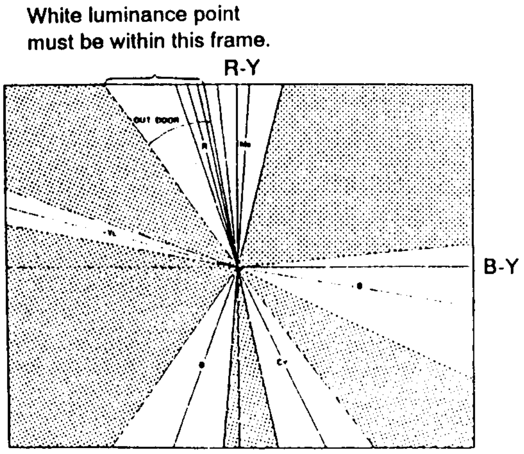


Fig. 7-35.

7-2-28. Focus Motor Speed Adjustment (VC-66P Board)

Subject	Arbitrary
Measurement Point	CN703 on the IN-25 board
Measuring Instrument	AF microprocessor data reading jig
Adjustment Address	26 (FOCUS SPEED)
Specified Value	Average value of data indicated on jig=7.0 ± 0.5

Remarks: The rotation time from the close extreme to far extreme of the focus ring should be approximately 2.1 seconds after completion of adjustment.

Adjustment method:

1) Select adjustment address 37 with the adjustment remote controller and enter adjustment data of 01. (Sets hunching mode)
2) Set the adjustment address to 26.
3) Change the adjustment data so that the indication on the AF microprocessor data reading jig is 07 while the ring is rotating.
4) Press the HOLD button of the AF microprocessor data reading jig while the focus ring is rotating to read the indication value.
5) Repeat step 4) ten times and obtain the average value.
   Specified value=7.0 ± 0.5
   Repeat steps 3) and 4) if the specified value is not satisfied.
6) Set the adjustment address to 37 and set the adjustment data to 00. (Releases hunching mode)
7) Change the adjustment address to store the adjustment data in the memory.

7-2-29. Macro Area Adjustment (VC-66P Board)

Subject	Arbitrary
Measurement Point	CN703 on the IN-25 board
Measuring Instrument	AF microprocessor data reading jig
Adjustment Address	39 (MACRO)
Specified Value	(Value at zoom ring WIDE position) -1

Adjustment method:

1) Set the zoom ring to the WIDE position (11 mm position).
2) Select adjustment address 37 with the adjustment remote controller and set the adjustment data to 03. (Sets zoom position indication mode)
3) Read the data indicated on the AF microprocessor data reading jig. (Data in the range of 06 to 0E is displayed if normal.)
4) Change the adjustment address to 39.
5) Subtract 1 from the data read from the jig and enter as the adjustment data. (See Table 7-5. Hexadecimal-Decimal Conversion Table)
6) Change the adjustment address to 37 and set the adjustment data to 00. (Releases zoom position indication mode)
7) Change the adjustment address to store the adjustment data in the memory.

7-2-30. Auto-Focus LLA Adjustment (VC-66P Board)

Subject	All black (cover lens with black cap)
Measurement Point	CN703 on the IN-25 board
Measuring Instrument	AF microprocessor data reading jig
Adjustment Address	38 (LLA)
Specified Value	(Value indicated on jig) –2

Adjustment method:

1) Select adjustment address 37 with the adjustment remote controller and set to 0B as the adjustment data. (Sets auto-focus LLA adjustment mode)
2) Read the data indicated on the AF microprocessor data reading jig and call this value D.
3) Subtract 2 from D and make this value the LLA data.
   (See Table 7-5. Hexadecimal-Decimal Conversion Table)

> (Example)
> When D=30 (48), LLA data is 2E (46)
> When D=31 (49), LLA data is 2F (47)
> ( ) is decimal equivalent

4) Select adjustment address 38 with the adjustment remote controller and enter the LLA data as the adjustment data.
5) Select adjustment address 37 and set 00 as the adjustment data. (Releases auto-focus LLA adjustment mode)
6) Change the adjustment address to store the adjustment data in the memory.

7-2-31. Auto-Focus Adjustment (VC-66P Board)

Subject	All black (cover lens with black cap)
Measurement Point	CN703 on the IN-25 board
Measuring Instrument	AF microprocessor data reading jig
Adjustment Address	42 (BASE-H)

Adjustment method:

1) Turn off tha auto-focus with the FOCUS button (S883 on the FK-13 board).
2) Select adjustment address 37 with the adjustment remote controller and enter adjustment data of FF.
3) Read the indication on the AF microprocessor data reading jig and call this value D.
4) Obtain adjustment data D_{42} according to the following formulas.
   When D=0
   $D_{42}=03$
   When D > 0
   $D_{42}=D+2$ * Hexadecimal calculations
5) Select adjustment address 42 with the adjustment remote controller and enter D_{42} as the adjustment data.
6) Select adjustment address 37 and enter adjustment data of 00.
7) Change the adjustment address to store the adjustment data in the memory.

7-2-32. Auto-Focus Confirmation

Subject	Siemens star (position 1.5m from the front of the lens reference plane (CCD imager)

Note: Perform adjustment with the EVF (electronic viewfinder) attached.

Measuring method:

1) Place the Siemens star 1.5m from the front of the lens reference plane (See Fig. 7-2.).
2) Set the zoom lever to the TELE position (66 mm) and turn on auto focus with the FOCUS button.
3) Adjust the position of the camera so that center of the Siemens star is lined up with the center of the monitor screen on the monitor TV screen.
4) To open the iris, reduce the illumination of the Siemens star to the range in which the ■ mark in the upper center of the EVF screen does not light up.
   (Or cover lens with the ND filter)
5) Turn off the auto-focus with the FOCUS button.
6) Manually rotate the focus ring to set the focus. Confirm that the focus mark is inside the range shown in Fig. 7-36. at this time.
   Perform Flange Back Adjustment if this condition is not satisfied.
7) Rotate the focus ring to the close extreme (1.1m).
8) Turn on the auto-focus with the FOCUS button.
9) Confirm that there is focusing within two seconds and a sharp image can be obtained.
10) Turn off the auto-focus and rotate the focusring to the far extreme (∞).
11) Turn on the auto-focus.
12) Confirm that there is focusing within two seconds and a sharp image can be obtained.

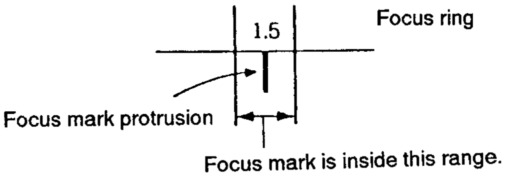


Fig. 7-36.

7-3. DIGITAL TITLER SYSTEM ADJUSTMENT

7-3-1. Titler PLL Adjustment (TI-20P Board)

Subject	Arbitrary
Measurement Point	TP804 (VPLL)
Measuring Instrument	Digital voltmeter
Adjusting Element	CT801
Specified Value	2.5 ± 0.1 Vdc

Connection:

1) Connect Pin (A8) (CAM Y) of check point array and Pin ④ (CAM 5V) of W801 with a jumper wire.

Adjusting method:

1) Adjust to 2.5 ± 0.1 Vdc with CT801.

7-3-2. CG Clock Adjustment (TI-20P Board)

Subject	Arbitrary
Measurement Point	TP806
Measuring Instrument	Frequency counter
Adjusting Element	CT802
Specified Value	6.38 ± 0.1 MHz

Adjusting method:

1) Adjust to 6.38 ± 0.1 MHz with CT802.

7-3-3. Title A/D Level Adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Confirmed on monitor TV
Measuring Instrument	
Adjustment Address	15 (TITLE A/D)
Specified Value	Blue and black areas are superimposed (become white). Other areas do not change.

Note: Make sure that "Y Level Adjustment" has been completed.

Adjustment method:

1) Select adjustment address 15 with the adjustment remote controller.
2) Press the MEMORY button (S891 on the FK-17 board).
3) Confirm that blue and black areas are superimposed and become white, and that red and magenta areas do not change.
4) If this condition is not satisfied, change the adjustment data with the adjustment remote controller and repeat steps 2) and 3).
5) Change the adjustment address to store the adjustment data in the memory.

Shaded area must change to white.

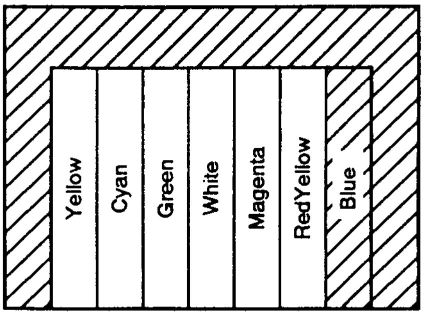


Fig. 7-37.

7-3-4. Title Pedestal Adjsutment (VC-66P Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin (A10) (CAM C) of check point array or video input/output terminal
Measuring Instrument	Oscilloscope
Adjustment Address	03 (PED)
Specified Value	4.43 MHz minimum chroma component

Note: Connect the EVF (electronic viewfinder) for adjustment.

Adjustment method:

1) Cover the lens with the black cap and press the MEMORY button (S891 on the FK-17 board).
2) Confirm that "T WHT" characters are displayed in the EVF. (If another color is indicated, press the COLOR button (S892 on the FK-17 board) unit "T WHT" is indicated.)
3) Select adjustment address 03 with the adjustment remote controller.
4) Change the adjustment data with the adjustment remote controller to set the 4.43 MHz chroma component to minimum amplitude.
5) Change the adjustment address to store the adjustment data in the memory.

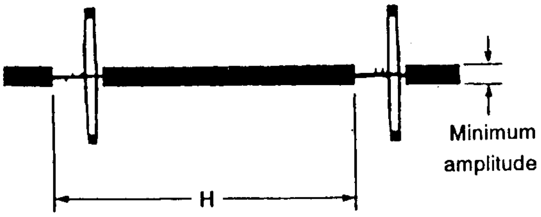


Fig. 7-38.

7-3-5. Title Y Level Adjustment (VC-66P Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin ③ (VIDEO OUT) of CN703 on the IN-25 board
Measuring Instrument	Oscilloscope
Adjustment Address	10 (TITLE Y)
Specified Value	250 ± 20 mV

Note: Connect the EVF (electronic viewfinder) for adjustment.

Adjustment method:

1) Cover the lens with the black cap and press the MEMORY button (S891 on the FK-17 board).
2) Confirm that "T WHT" characters are displayed in the EVF.
3) Select adjustment address 10 with the adjustment remote controller.
4) Change the adjustment data with the adjustment remote controller to set the Y signal level to 250 ± 20 mV.
5) Change the adjustment address to store the adjustment data in the memory.

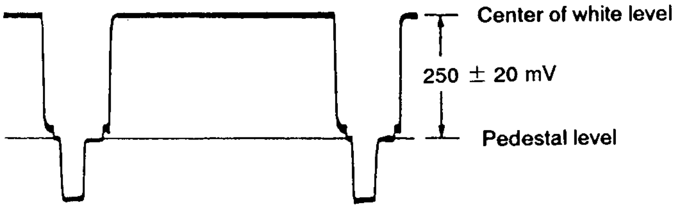


Fig. 7-39.

7-4. SYSTEM CONTROL SYSTEM ADJUSTMENT

7-4-1. System Clock Adjustment (DI-24P Board)

Note: Remove the lens for adjustment.

Mode	Power ON
Measurement Point	TP562 (pin ⑱ of IC561) (SYS CLK)
Measuring Instrument	Frequency counter
Adjusting Element	RV561
Specified Value	330 ± 5kHz

Adjustment method:

1) Adjust to 330 ± 5 kHz with RV561.

7-4-2. Clock Precision Adjustment (DI-24P Board)

Note: Remove the lens adjustment.

Mode	Power OFF
Measurement Point	TP566 (pin ㊶ of IC561) (CLOCK)
Measuring Instrument	Frequency counter
Adjusting Element	CT561
Specified Value	8192 ± 0.04 Hz

Adjustment method:

1) Turn ON/OFF the POWER switch.
2) Connect TP564 ($\overline{\text{TEST}}$) and TP565 (GND) with a jumper wire. (TEST mode)
3) Turn OFF/ON the POWER switch.
4) Adjust to 8192 ± 0.04 Hz with CT561.
5) Remove the jumper wire.

7-5. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT

7-5-1. Preparations

1) Prepare the 8mm video deck or 8mm video camera with the VIDEO OUT terminal that output signal level is 1 Vp-p (75 Ω terminated).
2) Playback the portion of monoscope on the alignment tape.
   Alignment tape: Operation check
   WR5-5CSP (8-967-995-47)
3) Input the playbacked monoscope signal to Pin ③ of W904 on the VF-15P board. (GND is Pin ② of W904.)
4) Add 5.0 ± 0.1 Vdc to Pin ① of W904 by the regulated power supply.

7-5-2. Horizontal Tilt Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Specified Value	See Fig. 7-41.

Adjustment method:

1) By turning RV904 (BRIGHT), adjust for a luminance level which provides appropriate visibility of yje CRT screen. (Fig. 7-41.)
2) Loosen the DY (deflection yoke) tightening nut. (Fig. 7-40.)
3) Make the image horizontal by rotating DY.
4) Retighten the DY tightening nut. (Do not tighten excessively.)

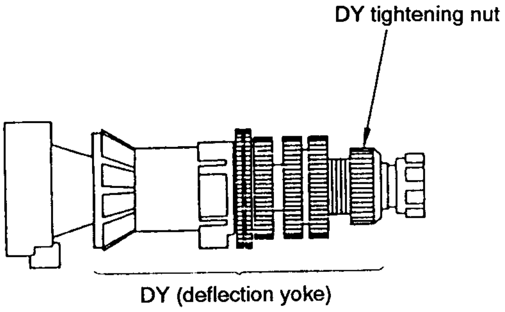
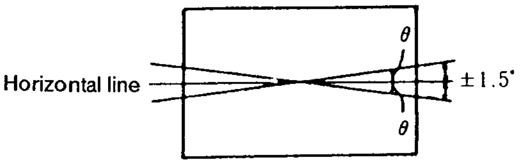

DY tightening nut
DY (deflection yoke)

Fig. 7-40.


Horizontal line
θ
θ
±1.5°

specified value: Image crientation within ± 1.5 ° of horizontal line.

Fig. 7-41.

7-5-3. Centering Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Specified Value	See Fig. 7-43.

Adjustment method:

1) Turn the centering adjustment rings to provide an image with even right, left, upper and lower margins. (See Fig. 7-42.)

Note: Since the centering position is affected by the earth magnetism, turn the equipment over 360 ° horizontally, and make adjustments at the orientation which exhibits median displacements of the image.

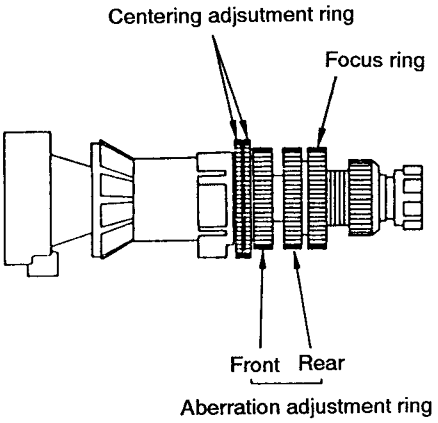

Centering adjsutment ring
Focus ring
Front
Rear
Aberration adjustment ring

Fig. 7-42.

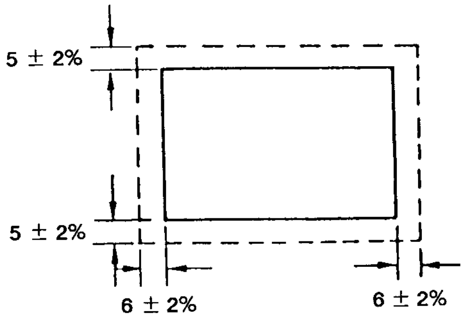


Fig. 7-43.

7-5-4. AFC Adjsutment (VF-15P Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Measurement Point	C904 ⊕
Measuring Instrument	Digital voltmeter
Adjusting Element	RV901
Specified Value	2.4 ± 0.05 Vdc

Adjustment method:

1) Adjust to 2.4 ± 0.05 Vdc with RV901.

7-5-5. Focus Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion

Adjustment method:

1) Adjust for optimum focus using the focus ring.
(See Fig. 7-44.)

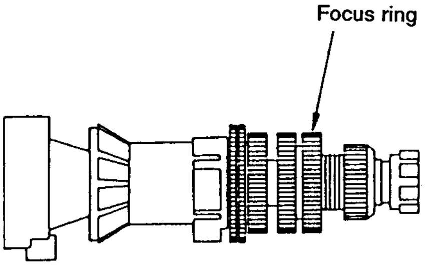


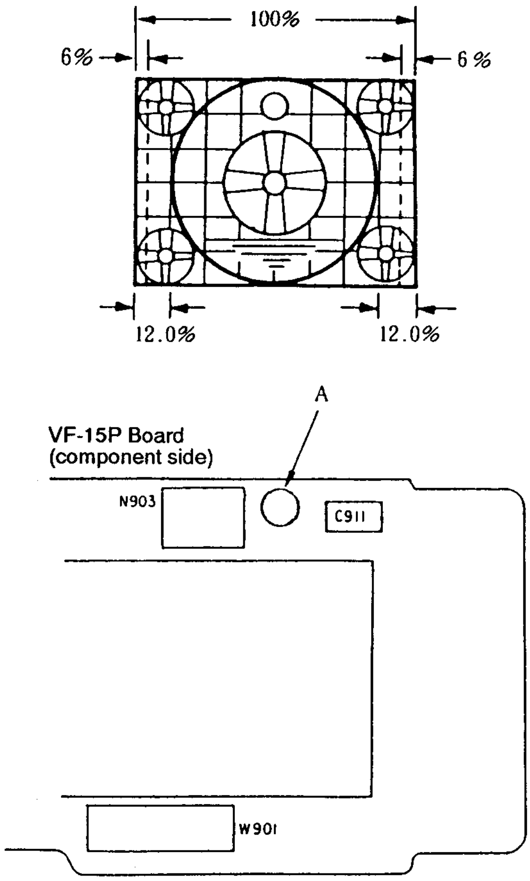
Fig. 7-44.

7-5-6. Horizontal Amplitude Adjustment (VF-15P Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjusting Element	C911
Specified Value	12%

Adjustment method:

1) Line up the upper and lower sections of the monoscope image with the upper and lower edges of the screen by rotating RV904.
2) Rotate RV904 to set the brightness to the normal level.
3) Short or open the pattern (A) of the H size adjustment capacitor (C911) to provide horizontal overscans of 12% (total of left and right).
(See Fig. 7-45.)



A section	H size
Open	Small ↕ Large
Short	

Fig. 7-45.

7-5-7. Vertical Amplitude Adjustment (VF-15P Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjusting Element	RV902
Specified Value	12%

Adjustment method:

1) By turning RV902, adjust vertical overscan to 12%. (upper and lower total)

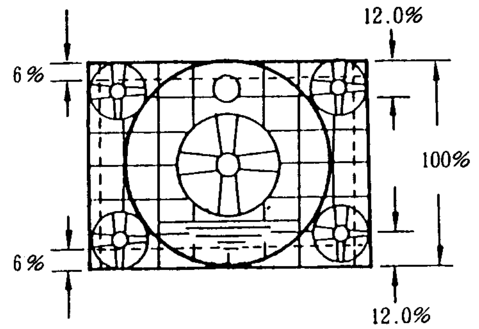


Fig. 7-46.

7-5-8. Brightness, Contrast Adjustment (VF-15P Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjusting Element	Brightness: RV904 Contrast: (B) R929 (C) R930 (D) R931 (E) R932

Adjustment method:

1) Rotate RV904 to set the brightness to the nomal level.
2) By shorting the adjusting lands (B), (C), (D) and (E), adjust the contrast until the bright and dark areas of a gray scale are displayed correctly. (The bright areas should not be made too bright to avoid a fuzzy display of the cross-hatches in the monoscope circle, and the brightness of the dark areas should be such that discrimination between the darkest and second darkest area is possible.)
   - i) In case of too bright
     Confirm the brightness by shorting the adjusting land (C). If it is still too bright, short the adjsuting land (B).
   - ii) In case of too dark
     Confirm the darkness by shorting the adjusting land (D). If it is still too dark, short the adjusting land (E).

VF-15P Board (component side)

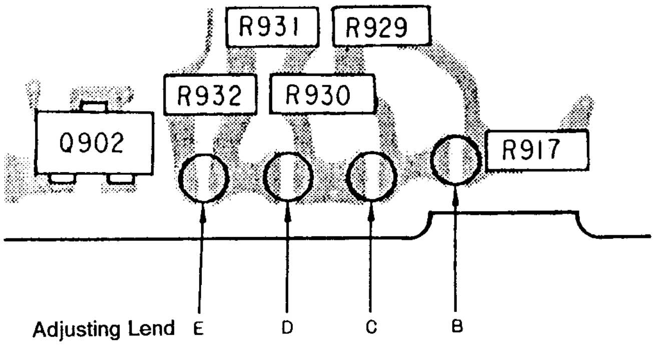
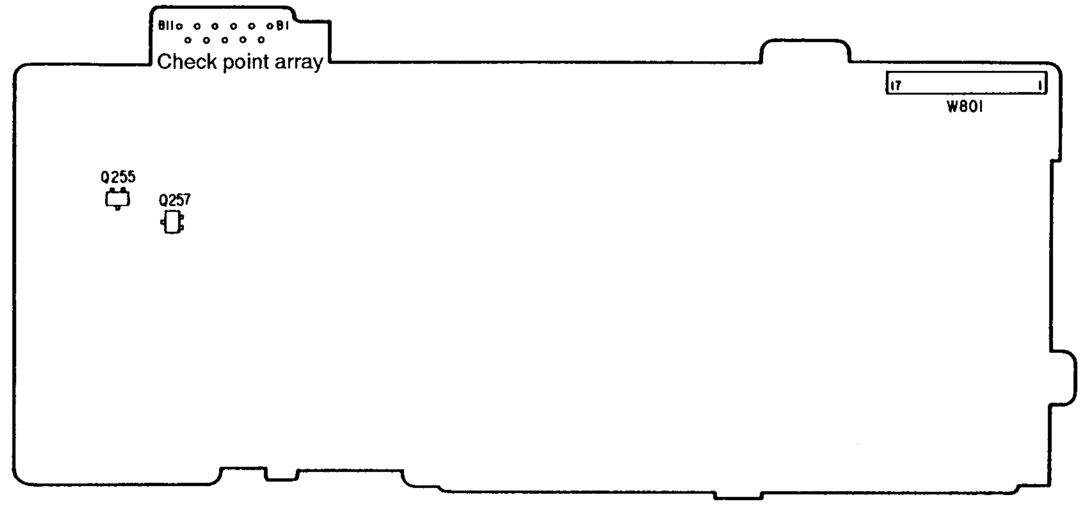


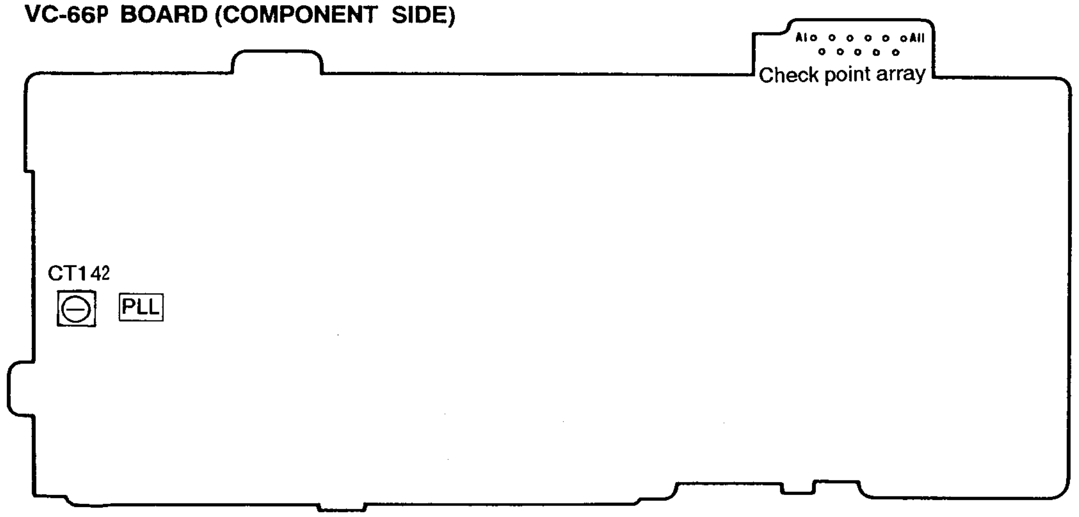
Fig. 7-47.

7-6. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

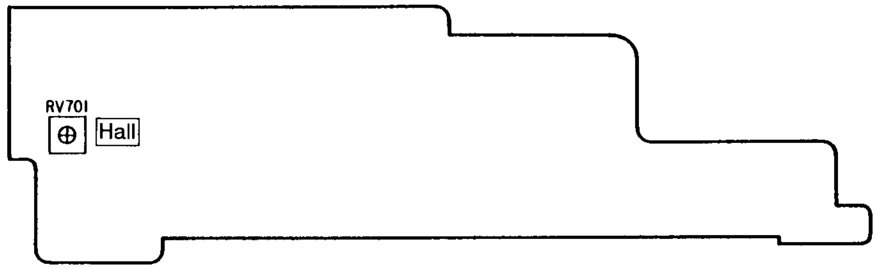
VC-66P BOARD (CONDUCTOR SIDE)


B11
B1
Check point array
17
1
W801
Q255
Q257

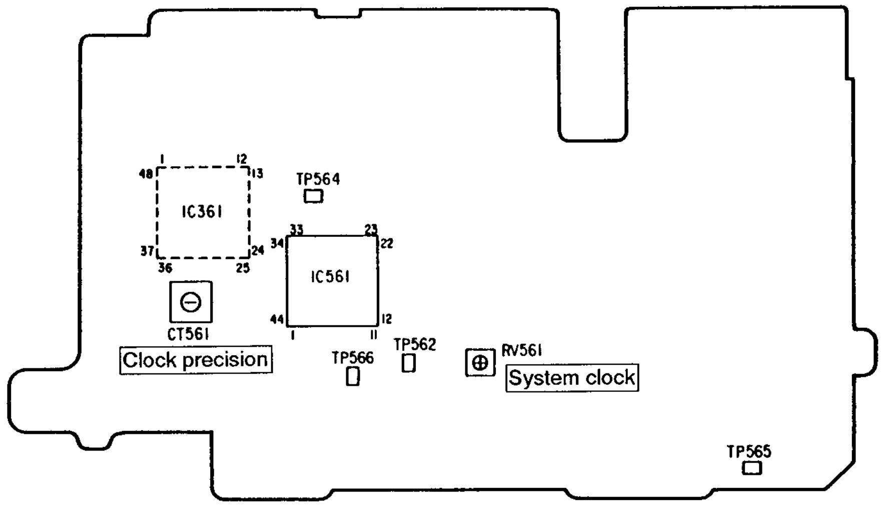
VC-66P BOARD (COMPONENT SIDE)


A10
A11
Check point array
CT142
PLL

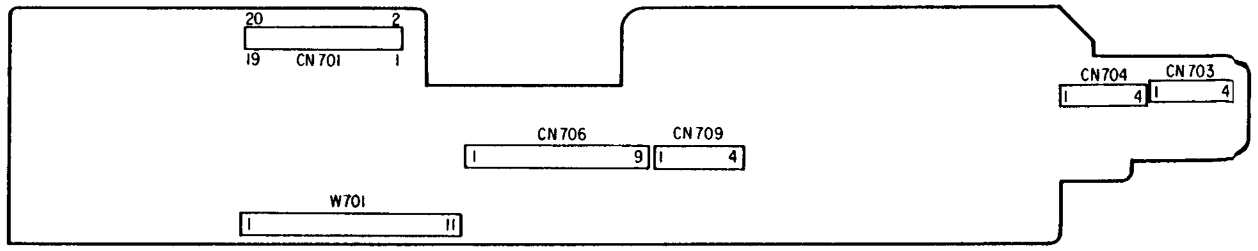
LD-20P BOARD (COMPONENT SIDE)



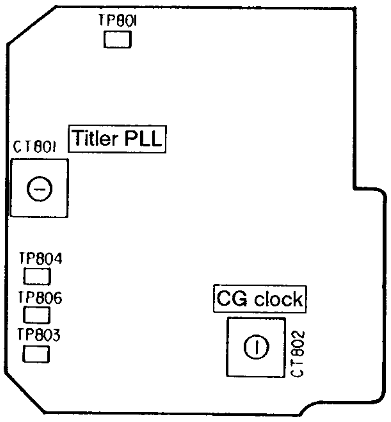
DI-24P BOARD (COMPONENT SIDE)


1
12
48
13
IC361
37
24
36
25
TP564
33
23
34
22
IC561
44
12
1
11
CT561
Clock precision
TP566
TP562
RV561
System clock
TP565

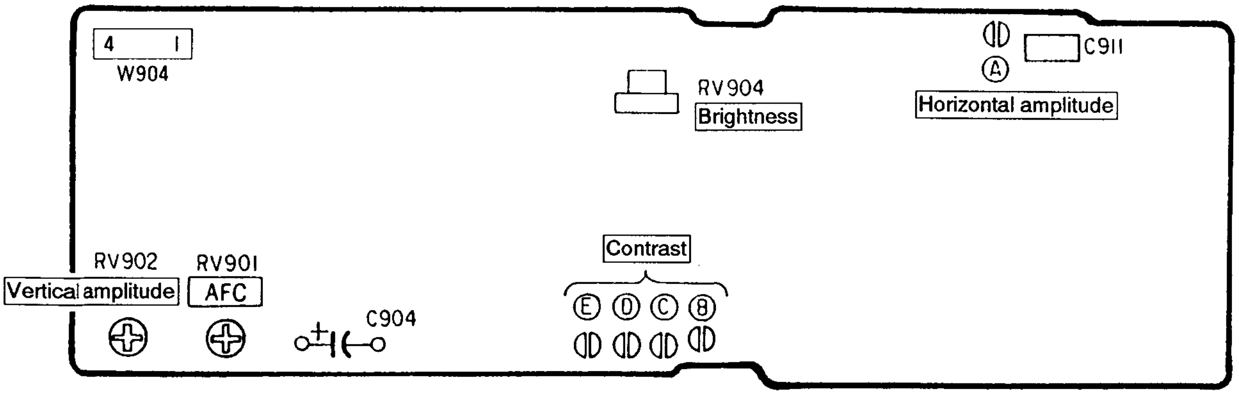
IN-25 BOARD (COMPONENT SIDE)


20
2
19
CN701
1
CN704
1
4
CN703
1
4
CN706
1
9
CN709
1
4
W701
1
11

TI-20P BOARD (COMPONENT SIDE)


TP801
CT801
Titler PLL
TP804
TP806
TP803
CG clock
CT802

VF-15P BOARD (COMPONENT SIDE)


4
1
W904
RV904
Brightness
C911
Ⓐ
Horizontal amplitude
RV902
Vertical amplitude
RV901
AFC
C904
Contrast
Ⓔ
Ⓓ
Ⓒ
Ⓑ